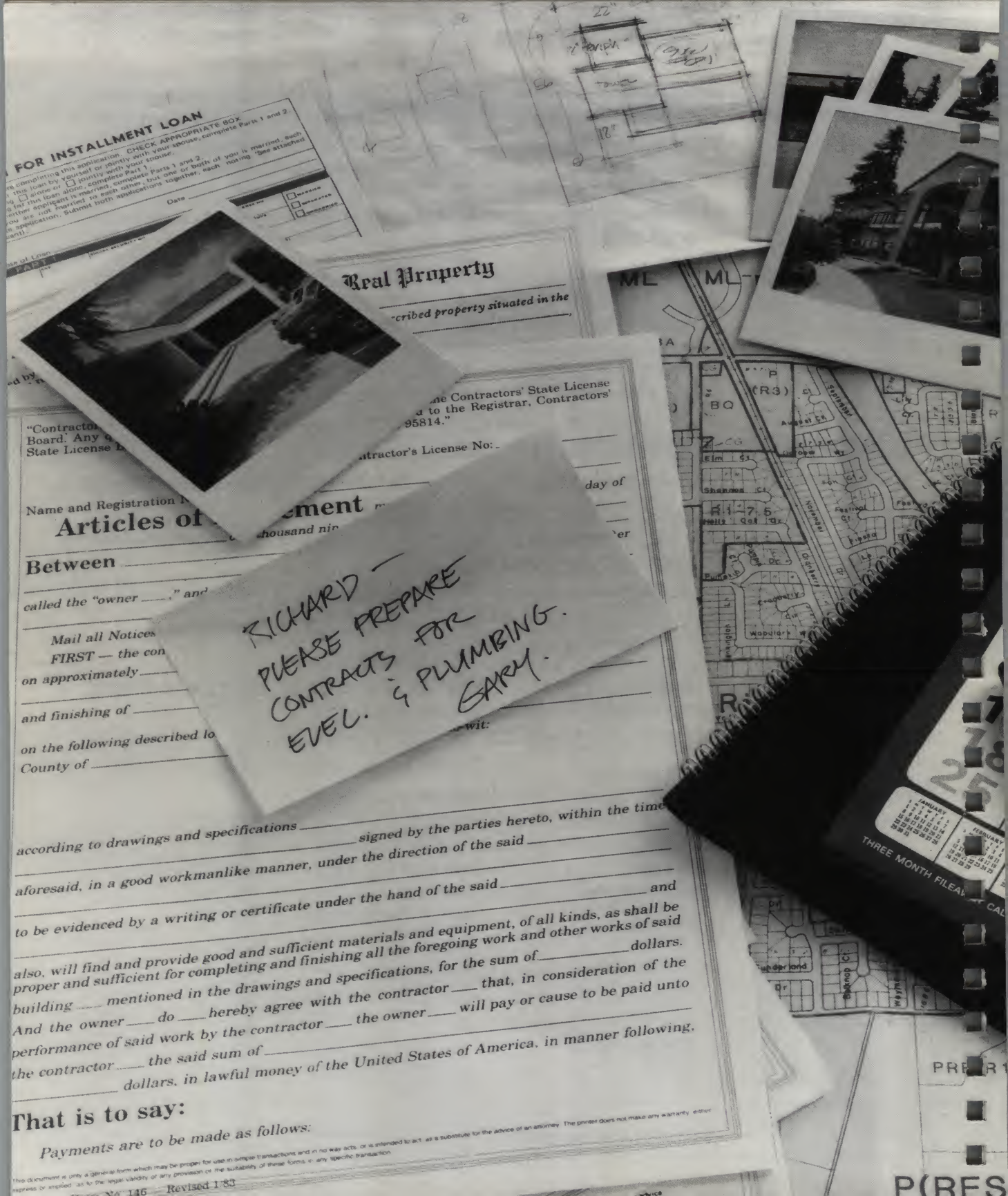


Introducing MacProject


FOR INSTALLMENT LOAN
Real Property
Articles of
Between
RICHARD —
PLEASE PREPARE
CONTRACTS FOR
ELEC. & PLUMBING.
GARY.
according to drawings and specifications
aforesaid, in a good workmanlike manner, under the direction of the said
to be evidenced by a writing or certificate under the hand of the said
also, will find and provide good and sufficient materials and equipment, of all kinds, as shall be
proper and sufficient for completing and finishing all the foregoing work and other works of said
building mentioned in the drawings and specifications, for the sum of dollars.
And the owner do hereby agree with the contractor that, in consideration of the
performance of said work by the contractor the owner will pay or cause to be paid unto
the contractor the said sum of
dollars, in lawful money of the United States of America, in manner following.
That is to say:
Payments are to be made as follows:
THREE MONTH FILEAWAY CAL



Chapter 1

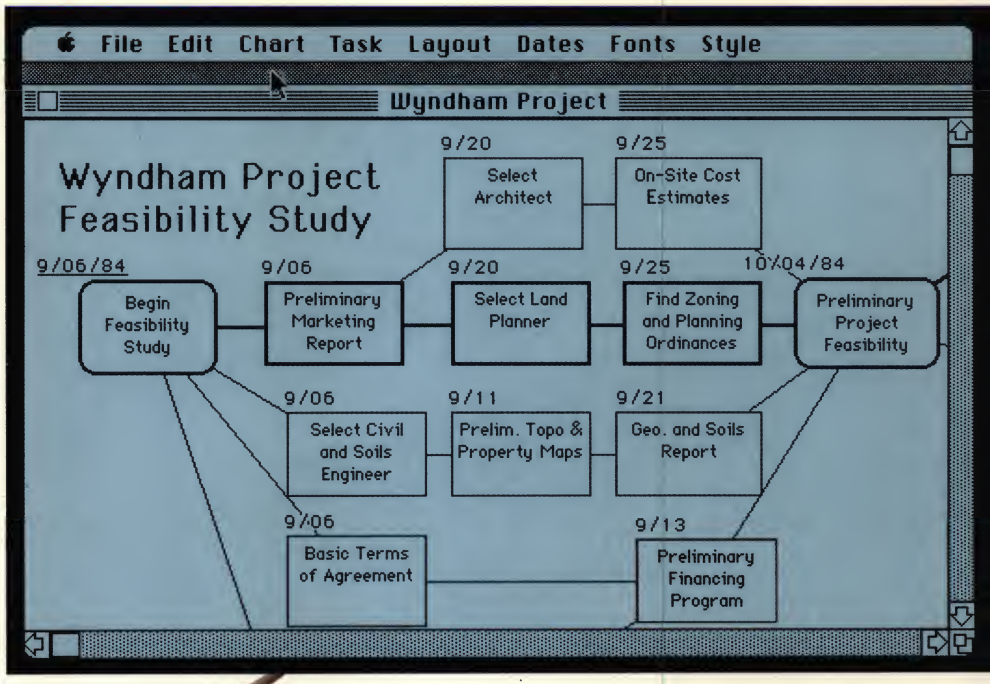
Learning MacProject

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19 Adding Task Info
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24 Seeing the Critical Path Change
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26 Experimenting

MacProject


File Edit Chart Task Layout Dates Fonts Style
Wyndham Project
Wyndham Project Feasibility Study
9/06/84
Begin Feasibility Study
9/06
Preliminary Marketing Report
9/06
Select Civil and Soils Engineer
9/06
Basic Terms of Agreement
9/20
Select Architect
9/20
Select Land Planner
9/11
Prelim. Topo & Property Maps
9/25
On-Site Cost Estimates
9/25
Find Zoning and Planning Ordinances
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Geo. and Soils Report
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Preliminary Project Feasibility



Introduction

This chapter leads you through setting up a project in MacProject. The project you'll plan—choosing a new office location—is a simple one, but in drawing it in MacProject, you'll be able to see how to build and manage projects of any size. In this lesson you'll:

- □ draw boxes to represent the project's tasks—the work that needs to be done
- □ connect tasks that depend on each other
- □ add information about each task—how long it will take and who's responsible for it
- □ display and set dates and see the project's critical path
- □ make a change to the schedule and have MacProject recalculate the entire schedule immediately

You can also take the guided tour of MacProject by listening to the cassette tape (use it in any cassette player) and using the MacProject training disk. In the guided tour, your Macintosh itself demonstrates MacProject.

Drawing a Schedule Chart

1 Opening a New MacProject Document

All projects begin as Schedule Charts. You create a Schedule Chart by opening a new MacProject document.

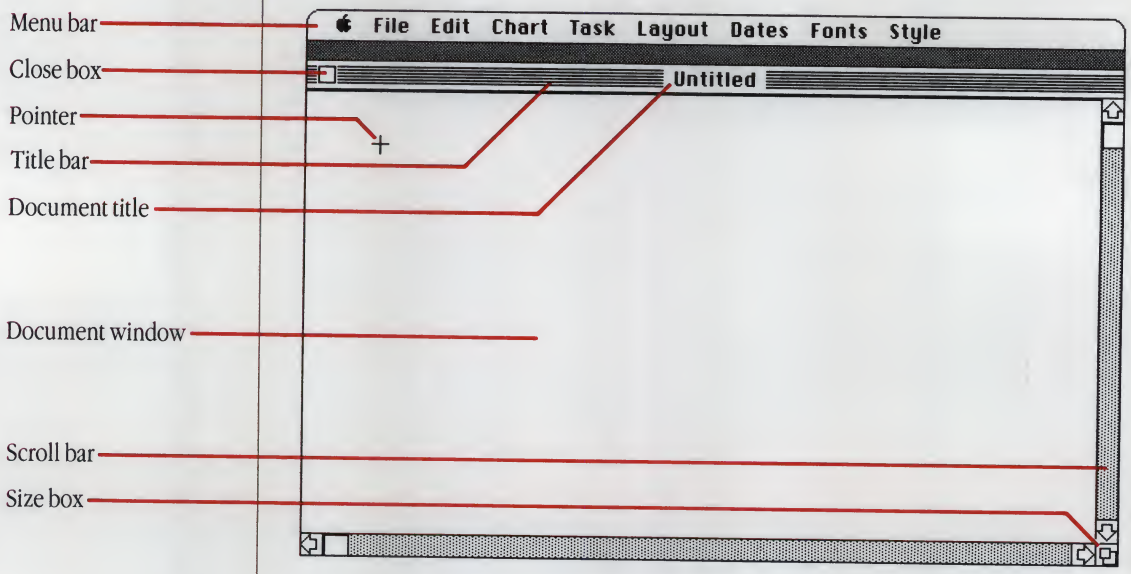
- **Insert the MacProject disk, metal end first, label side up.**

 The Project disk icon appears on the desktop. It's highlighted to show it's selected.

- **Open the Project disk window by choosing Open from the File menu.**

- **Open a new MacProject document by clicking the MacProject application icon and choosing Open again.**

 You can also double-click the icons to open them. You'll hear a soft hum while the Macintosh gets information from the MacProject disk; in a few seconds, the screen will look like this:



This is the Schedule Chart window. MacProject presents your schedules in several different forms, but new projects always start as Schedule Charts. At the top is the **menu bar**, with menus that contain all the commands MacProject understands. The document is untitled at the moment; you'll name it the first time you save it. The **pointer** takes different shapes, depending on what you're doing. Right now, if you position it in the menu bar, it's an arrow; if you position it in the document window, it's a crossbar

for drawing boxes. There are **scroll bars**, for moving around vertically or horizontally in the document. There's a **size box** you can drag to change the size of the document window, and a **close box** you can use later to close the window.

2 Drawing a Task Box

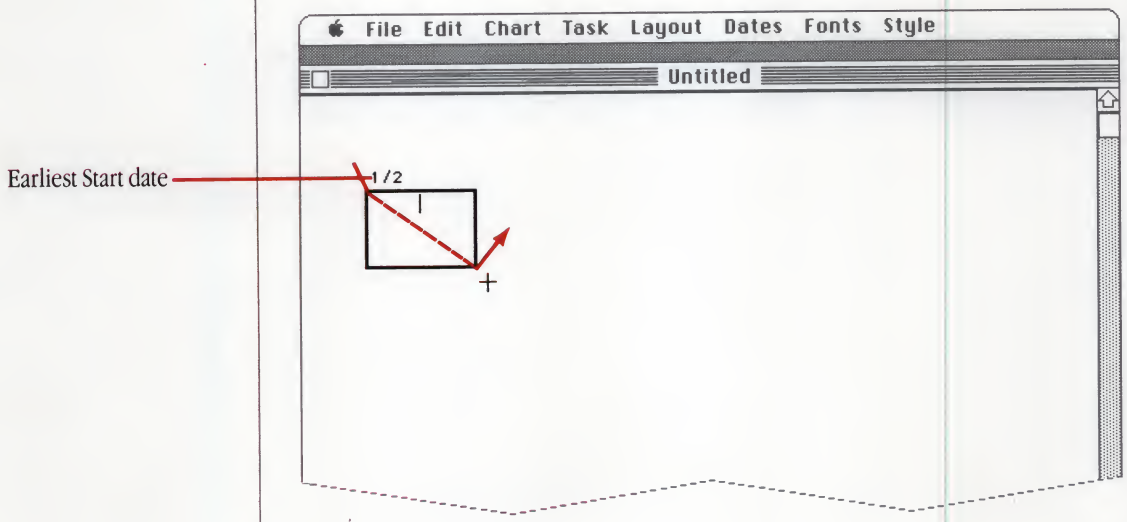
Suppose you and three coworkers are looking for new office space for your growing business. You want to know how long it will be before you can move into the new space. You know you have several tasks: talking to a realtor, visiting the two or three most likely locations, and arranging financing. You know approximately how long each of the tasks will take, which ones can be done in parallel, and which depend on another task's completion.

■ **Draw a box by dragging diagonally down from left to right.**

Start drawing near the top left corner of the window. Make the box about 1 by 1½ inches.

If you don't get this first box right (or at any time you want to start from scratch), choose Select All from the Edit menu, and then choose Clear to erase everything in the document.

Notice the numbers at the top left of the box. They represent the date this task can get started. In a new project, this date is preset to the first working day of the project's calendar range (in 1984, it's January 2); you'll see in a minute how to change the starting date for your project.



3 Naming a Task

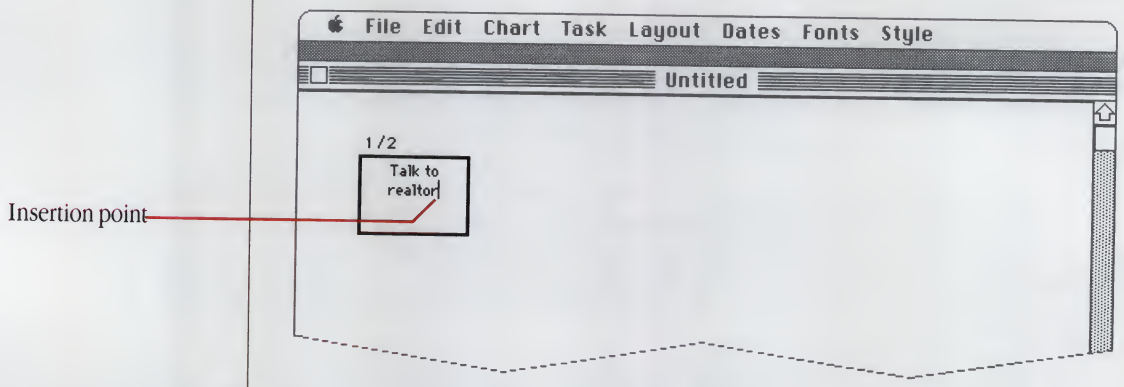
Your newly drawn box has an **insertion point** inside it, where text you type will be inserted as this task's name. (The insertion point goes away if you click outside the box. If this happens, click anywhere in the box to select the insertion point again.)

■ **Type a name for the task:**

Talk to realtor

You can edit text in MacProject in the usual way. Use the Backspace key if you make a mistake, or use any of the commands in the Edit menu. See *Macintosh,* the owner's guide, if you're not sure how to edit text.

If the text doesn't all fit in a box you draw, you can make the box larger by clicking on its border to select it, and then dragging one of its "knobs" to make the box "grow."



4 Drawing More Task Boxes

Use the techniques you just learned to create boxes to represent each of the tasks in your project. Don't worry if you don't get the boxes in exactly the right place. You can move them later. Use the scroll bars if you run out of room in the document window.

If a box isn't the size you want, select it and drag one of its knobs to change its size.

- **Drag diagonally to draw a second box.**
- **Name this task:**

 Visit locations

- **Drag to draw a third box.**
- **Name this task:**

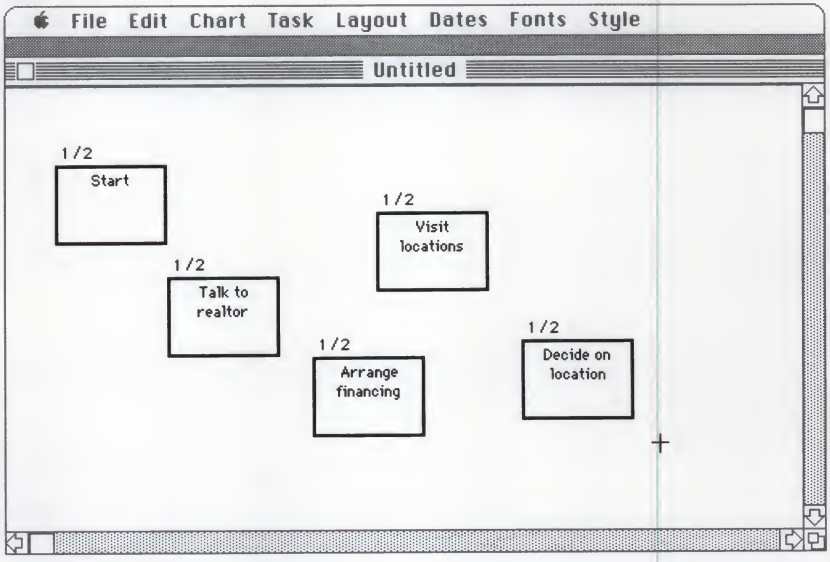
 Arrange financing

- **Do this two more times. Name the last two boxes:**

 Start

 Decide on location

You can also duplicate the existing box by clicking its border to select it, and then choosing Duplicate from the Edit menu.



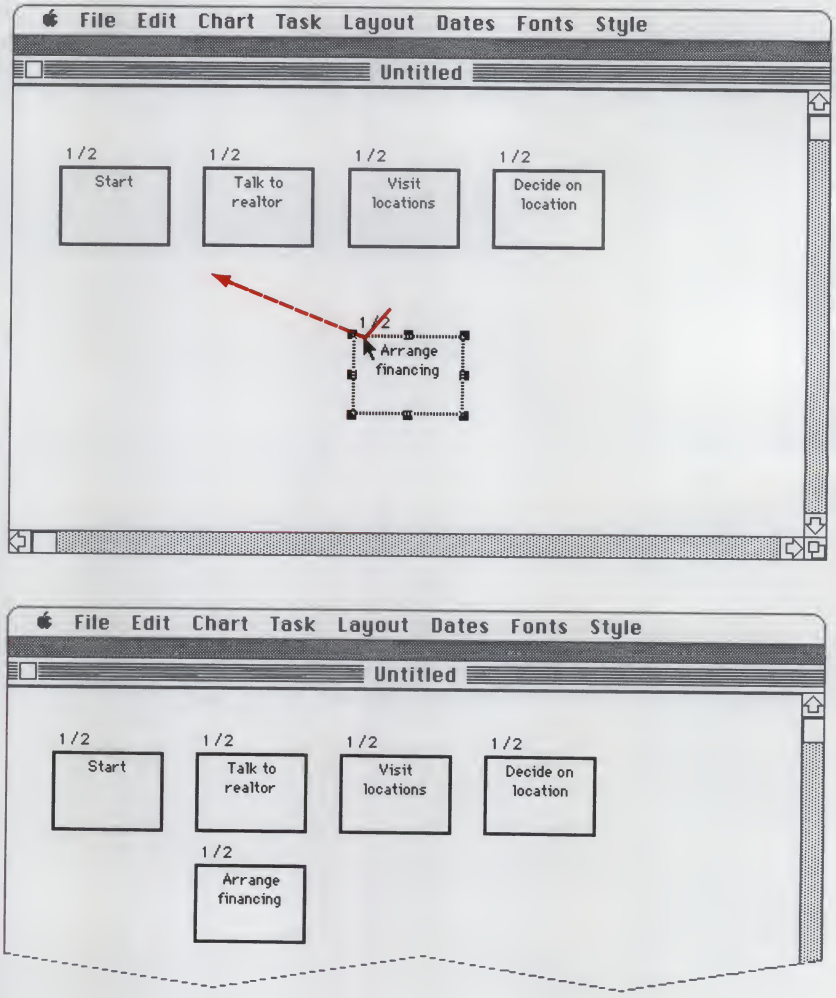
5 Moving Task Boxes

You can move the boxes anywhere on the screen.

- **Position the pointer anywhere on one of the box's borders and drag the box to a new position.**

 To let you know you're in the right place, the pointer changes to an arrow when you position it over a border. When you press the mouse button with the pointer positioned on the border, "knobs" appear around the box to show it's selected.

- **Drag the boxes to arrange them in order left to right: "Start", "Talk to realtor", "Visit locations", "Decide on location". Place "Arrange financing" so it's parallel to the other tasks.**



6 Creating Milestones

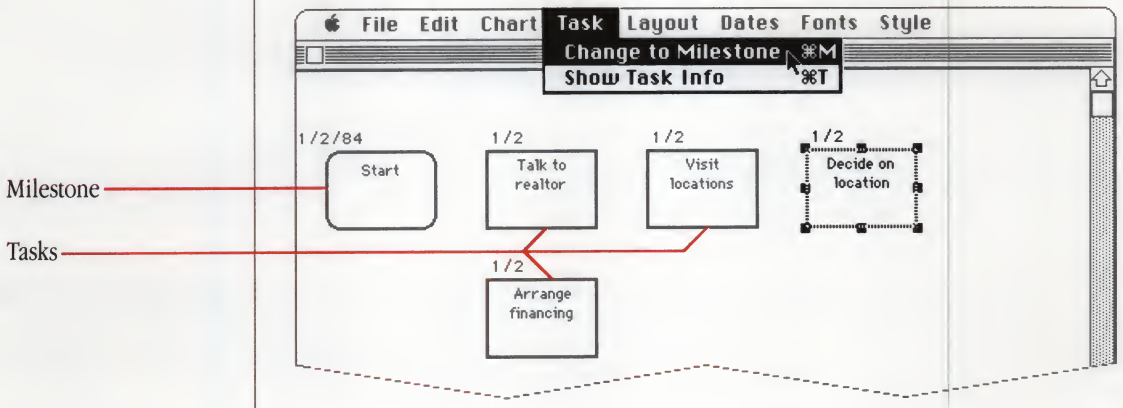
In addition to this project's three tasks, there are two milestones marking the project's start and the end. (Milestones can also appear anywhere within your project.) Milestones are represented in your chart as boxes with rounded corners. You create them from task boxes.

- **Select the box named "Start" by clicking anywhere on its border.**
- **Choose Change to Milestone from the Task menu.**

 When the box becomes a milestone box, it displays the year as well as the month and day. Milestone dates always include the year.

- **Do the same thing for the box you named "Decide on location".**

 Select the box and then choose Change to Milestone from the Task menu.



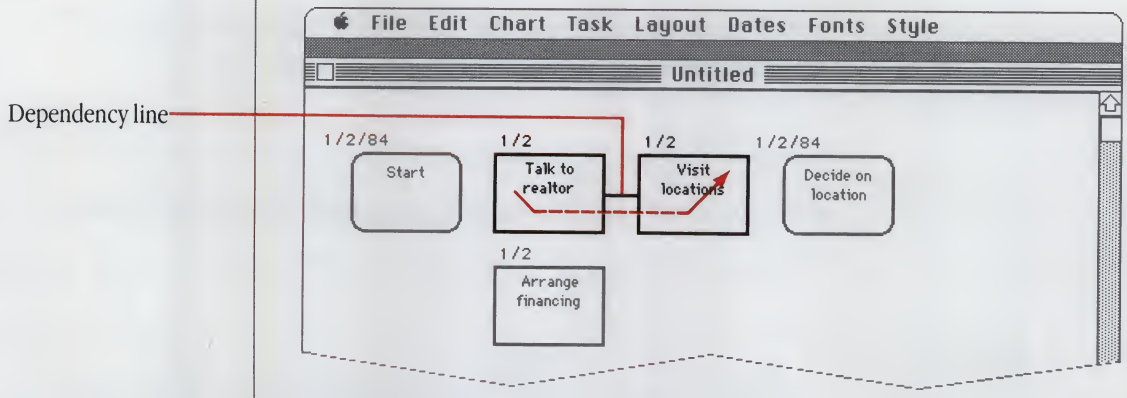
7 Adding Dependencies

In most projects, some tasks can be done while others are being worked on, and some tasks can't get started until another task is complete. In the project you're building, you need to talk to a realtor before you can visit prospective locations. "Visit locations" is **dependent** on "Talk to realtor". On the other hand, you and your partners can investigate financing during the same time you work on the other tasks. It's not dependent on other tasks. It's just dependent on the milestone "Start".

You use lines to tell MacProject about the project's dependencies.

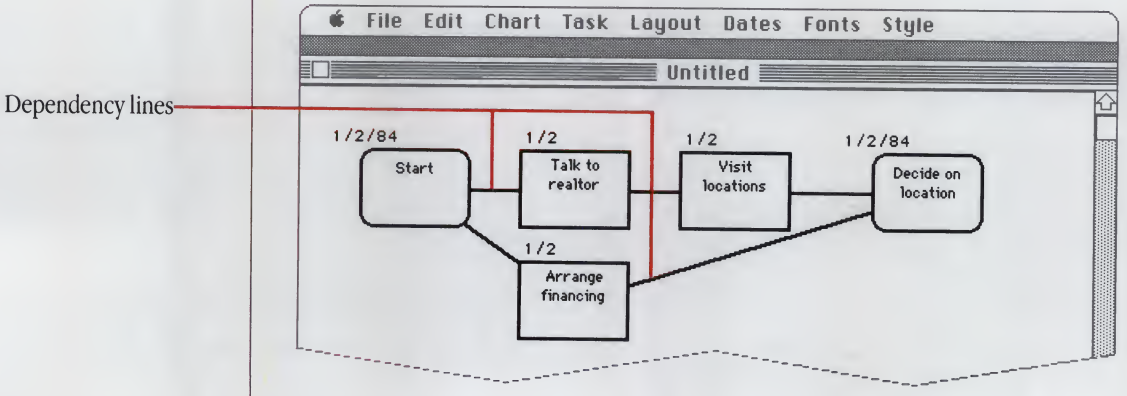
Dependent tasks are always on the right of the tasks they depend on.

■ **Drag from inside the box of the task that must be done first—"Talk to realtor"—to inside the box of the task that depends on it—"Visit locations".**



A line appears between the two tasks, representing the dependency. In drawing dependency lines, you can position the pointer anywhere inside the first box and end anywhere in the second. You always drag from left to right.

■ **Draw lines between the other dependent tasks and milestones: from "Start" to "Talk to realtor"; from "Visit locations" to "Decide on location"; from "Start" to "Arrange financing"; and from "Arrange financing" to "Decide on location".**

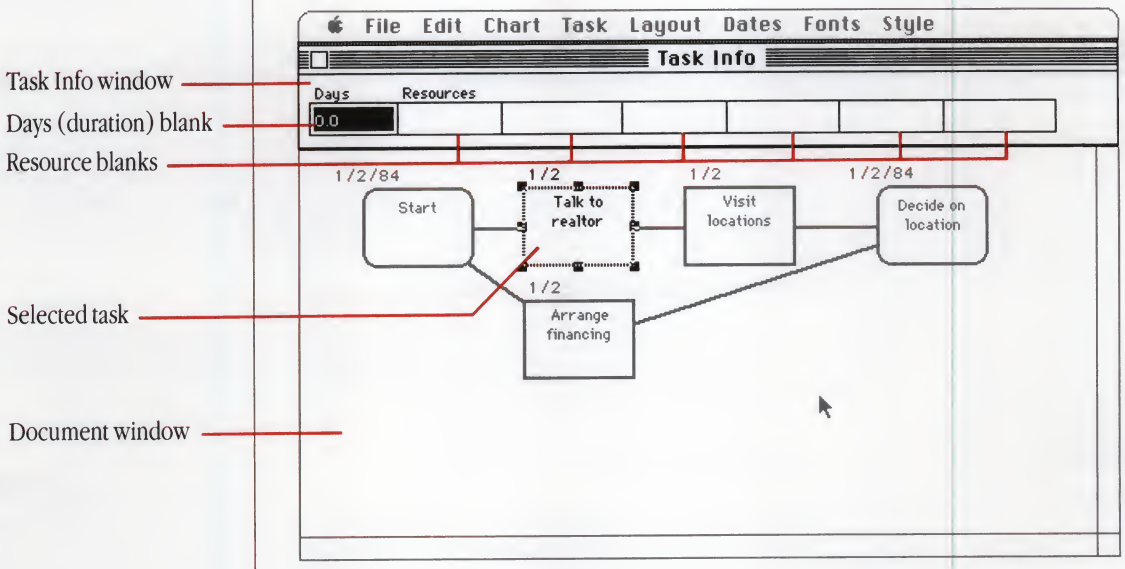


If you make a mistake in drawing lines and want to erase, click the line to select it, and then choose Clear from the Edit menu or press the Backspace key.

8 Adding Task Info

To calculate your schedule, MacProject needs some more information about each of the tasks. You've told it which tasks depend on others; now tell it how long each of the tasks will take and who's responsible for each task.

- **Select the task named "Talk to realtor" by clicking its border.**
- **Choose Show Task Info from the Task menu.**



A Task Info window appears, with a row of blanks for you to enter information about the selected task. There's a place for duration—the time it will take to complete this task. Right now the duration unit of time is preset to Days; you'll see how to change this in Chapter 2. There are also blanks for up to six resources this task uses.

The Days blank is automatically selected. Text you now type will replace this selection.

■ **Type:**

5

You estimate that talking to the realtor will take five days. If your estimate is wrong, you can always change the duration later.

■ **Press the Tab key.**

This moves the insertion point to the next blank, where you can type a resource for this task.

■ **Type your name.**

You could continue to add resources in the other blanks, but this task has just one resource.

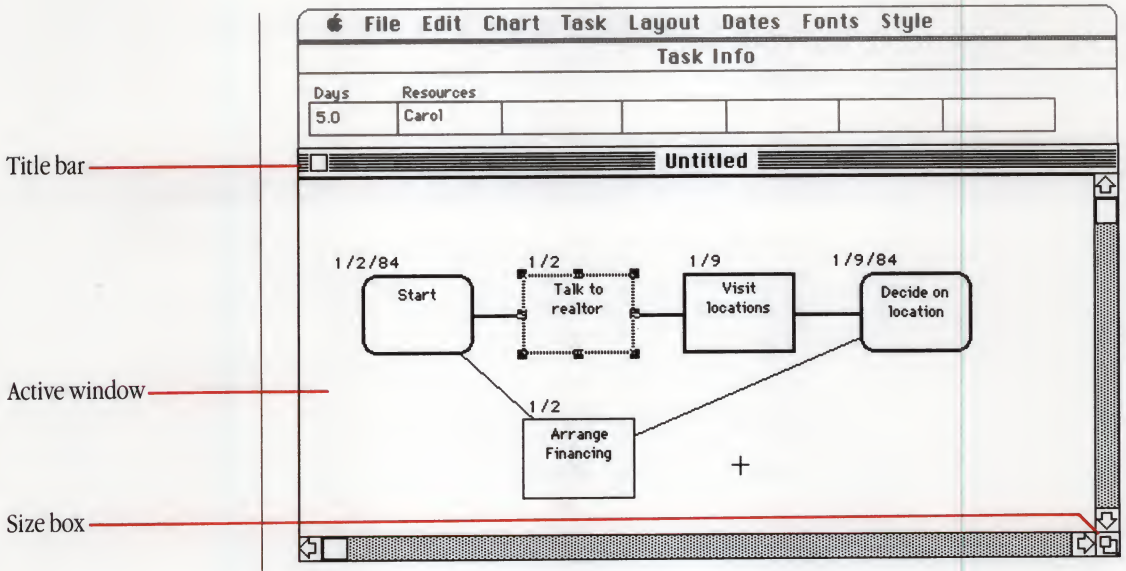
In calculating the schedule, MacProject figures in weekends and holidays. You can change the calendar to reflect your own work schedule and holidays.

■ **Choose Calendar from the Dates menu.**

For this example use the preset calendar. Later, when you lay out your own projects, set this to reflect your own working hours. (See "Setting the Calendar" on page 50.)

■ **Click the OK button.**

If the tasks in the document window are obscured by the Task Info window, click in the document window to make it active, use the size box in the bottom right corner to make the window slightly smaller, and then drag its title bar downward slightly so you can view both windows at the same time. See *Macintosh,* your owner's guide, if you're not sure how to manipulate windows.



■ **Select the task named "Visit locations" by clicking on its border.**

Notice that when you click on the Schedule Chart window, MacProject calculates your schedule, figuring in the duration you set for the task of talking to the realtor. The date above "Visit locations" and "Decide on location" has changed to 1/9 to reflect 5 working days and an intervening weekend.

Now the Task Info window shows information about the "Visit locations" task. Once you open the Task Info window, it stays open until you close the document, even though it may sometimes be obscured by the document window. The Task Info window always shows information about the currently selected task. (The Show Task Info command in the Task menu changes to Hide Task Info when the Task Info window is open.)

■ **Press the Tab key.**

This makes the Task Info window active and selects the first blank. Pressing the Tab key when a task is selected is a shortcut that opens the Task Info window if it's not already open, makes it active, and selects the first blank.

■ **Type:**

4

■ **Press the Tab key to move to the Resources blank.**

■ **Type:**

David

■ **Press the Tab key again to move to the second Resource blank and type:**

Mary

A task can have as many as six resources. This one has two.

Now add the duration and a resource for "Arrange financing".

■ **Select the "Arrange financing" task box.**

■ **Press the Tab key and type:**

8

■ **Press the Tab key and type:**

Beth

Since milestones aren't assigned a duration and resources, but rather mark starting and stopping points, you usually don't add Task Info for them.

9 Setting Dates

A schedule isn't really a schedule until you attach real dates to it. Most projects fall into one of two categories. Either you're working from a starting point and trying to determine when you'll be finished, or you have a deadline you're working against and want to know when you must start each task to meet the deadline. With this project, you want to know when you'll be finished—when you'll have decided on the new office if you start today.

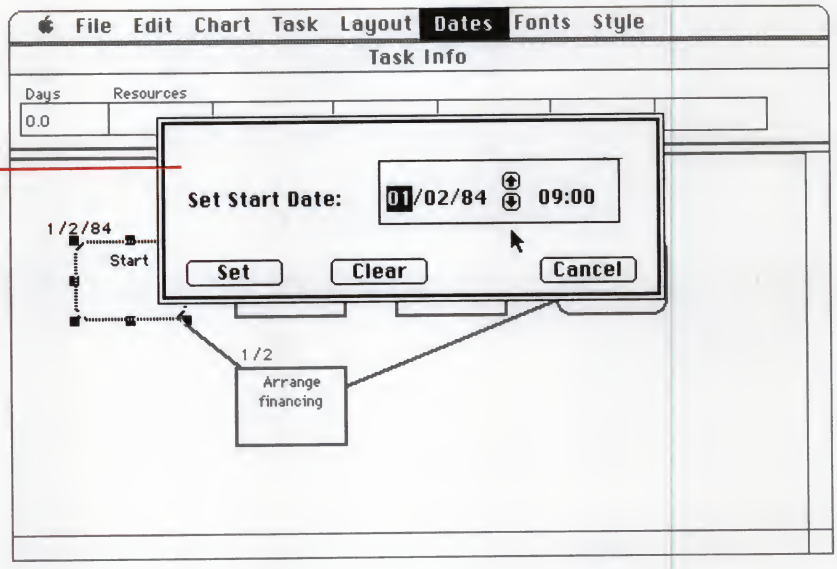
Every new MacProject document has the **Earliest Start** date for each task preset to the first working day in the project's calendar year range. To see when you'll have your new office chosen, set the Earliest Start date to today's date. (To follow this example more easily, say today's date is 9/24.)

■ **Select the "Start" milestone.**

■ **Choose Set Earliest Start from the Dates menu.**

A dialog box appears, with a place to set the Earliest Start date for the selected task or milestone—in this case, the Start milestone.

■ **Select "01" by clicking on it.**



■ **Scroll the month to "09" by clicking the arrows that appear inside the box. The up arrow scrolls forward; the down arrow scrolls backward. Pressing on an arrow scrolls it continuously.**

You can also use the keyboard to type "09".

■ **Click "02".**

■ **Use the arrows to scroll to "24" or type.**

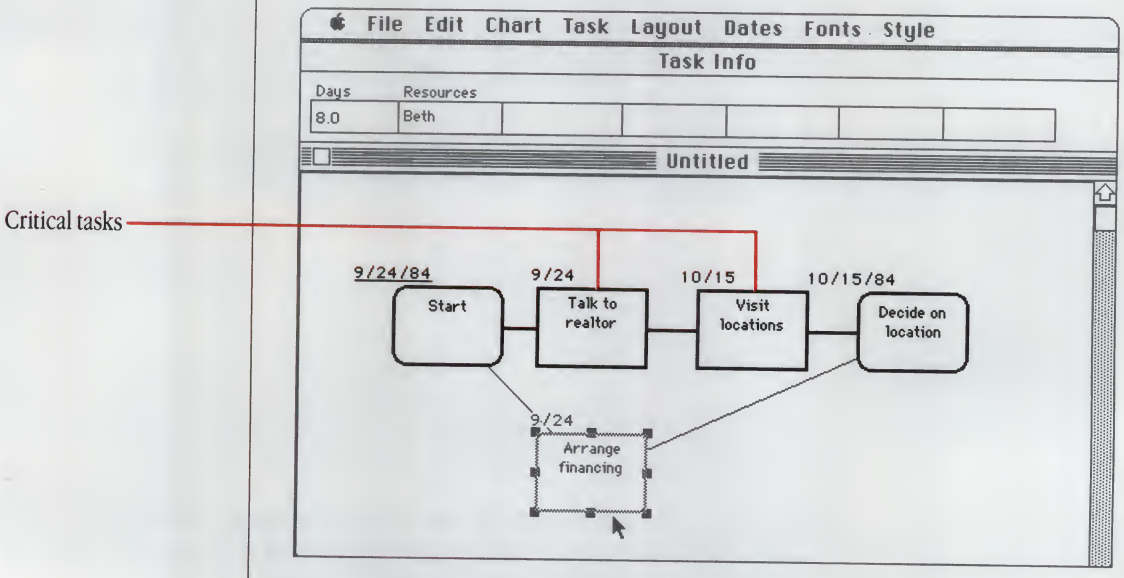
■ **Click the Set button.**

The date above the "Start" milestone changes to reflect the new starting date. This starting date is underlined to show you set it. And the date above the "Decide on location" milestone tells you the earliest you'll be able to decide on a new location—10/5—based on everything that has to be done first.

You can later clear a date you set by choosing Set Earliest Start from the Dates menu and clicking the Clear button.

10 Seeing the Critical Path Change

MacProject lets you know where to put your attention by pointing out the tasks that must be completed on time in order for the entire project to be done on schedule. Tasks on the critical path are outlined in bold. Right now "Talk to realtor" and "Visit locations" are the critical tasks. But what happens if "Arrange financing" takes longer than you thought?



■ **Select the "Arrange financing" task box.**

Now the Task Info window shows information for this task, because it's the selected task.

■ **Press the Tab key.**

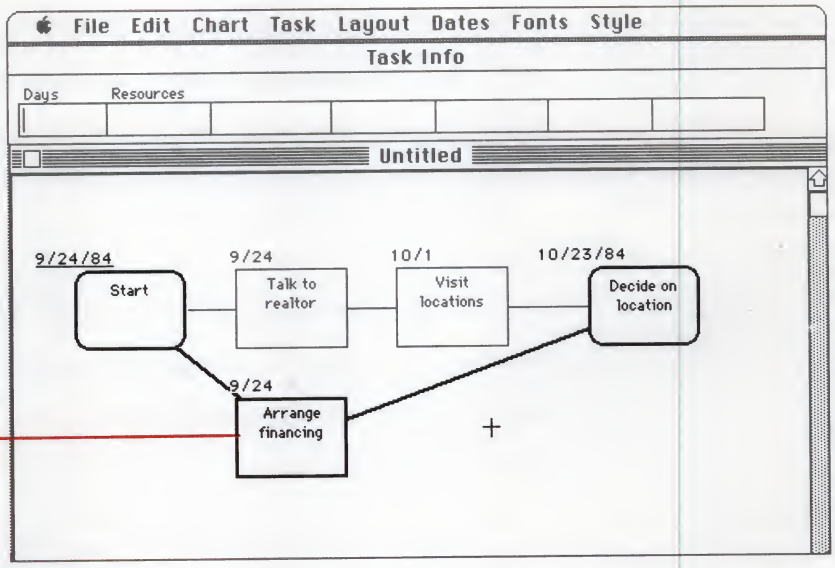
Pressing the Tab key when a task is selected always makes the Task Info window active and selects the duration blank.

■ **Type:**

20

Whenever text is selected, typing replaces the selection.

■ **Press Enter or click in the Schedule Chart window.**



Notice that the "Decide on location" date has changed again, and the critical path has changed as well. Whenever you make a change to your schedule, MacProject recalculates your schedule and shows you any change in the critical path.

If you press Enter instead of clicking in the Schedule Chart window, MacProject does the calculation without your having to make the Schedule Chart the active window. This is handy for continuing to edit information in the Task Info window.

11 Calculating Backward from a Deadline

The schedule you just laid out calculates forward, showing you the earliest date you can finish the project. MacProject also calculates backward so you can see when you have to get started to complete work by a deadline. To see this, you display additional dates around the boxes in the chart.

- **Choose Show Dates from the Dates menu.**
- **Click Latest Start and then click the OK button.**

Now MacProject will display at the bottom left corner of each task box the latest possible date to start that task and still meet a deadline. Now set a deadline. Here's how.

- **Select the "Decide on location" milestone.**
- **Choose Set Latest Finish from the Dates menu.**
- **Change the Latest Finish date to "11/1".**
- **Click the Set button.**

This lets you see the latest possible dates you can start each task and meet the deadline. Notice the new date under the "Start" milestone—10/4. You can start as late as 10/4 and still decide on a location by 11/1.

12 Experimenting

You can also change other information about the project you just created, and see the new schedule instantly. Try changing tasks' durations or setting a new start date.

If you want to experiment with an expanded version of this project, open the Sample Project document on the MacProject disk. Here's how.

- **Choose Close from the File menu.**

You'll be asked if you want to save the document. If you click Yes, you'll be asked to name it. Type a name and click the Save button.

- **Choose Open from the File menu.**

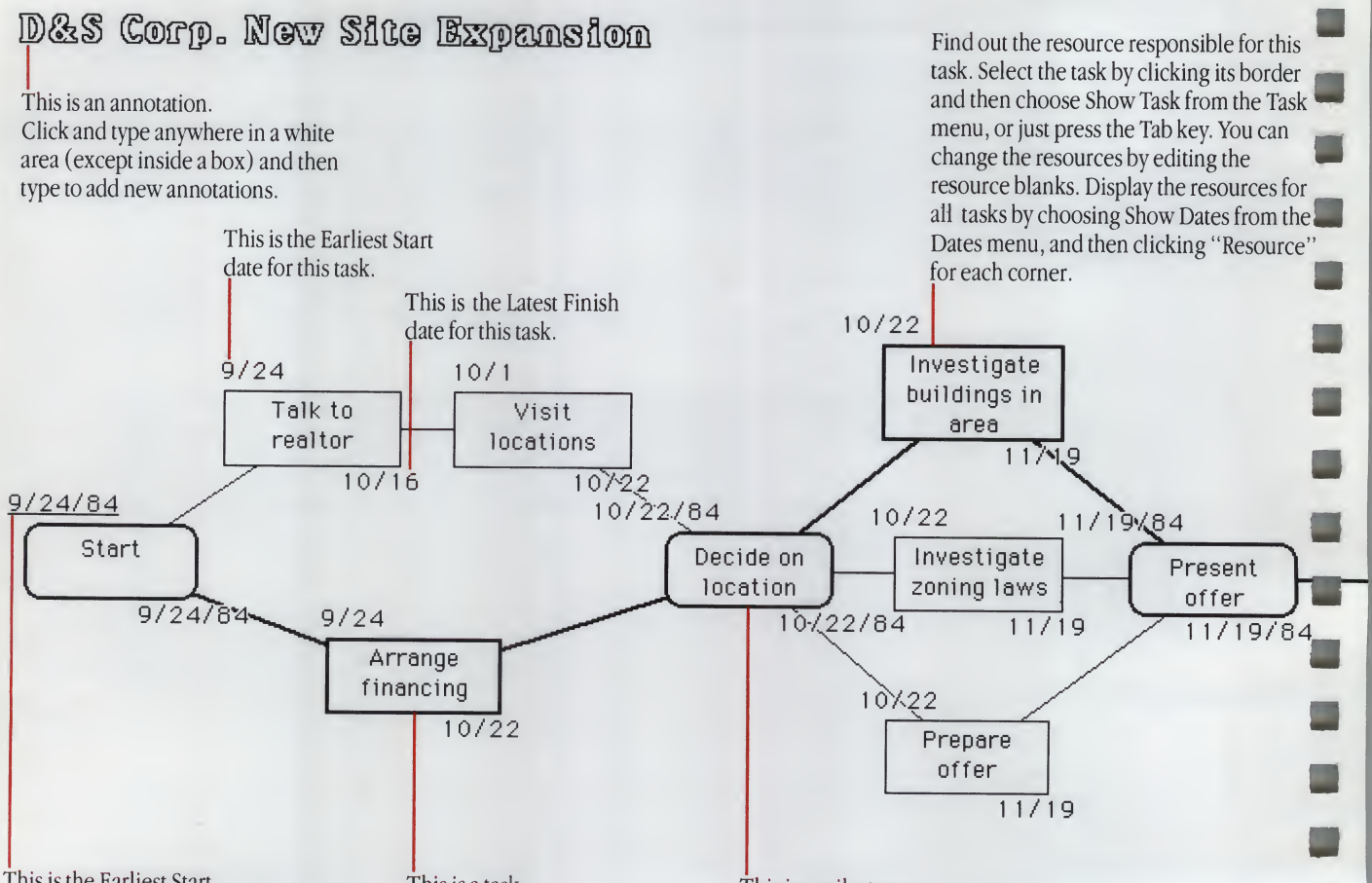
Choosing Open always presents a list of any existing MacProject documents on the current disk. Right now there's one other MacProject document on this disk—"Sample Project."

- **Select the Sample Project document by clicking it.**
- **Click Open.**

The Sample Project document opens. It looks pretty much like the document you created, expanded to include the move to the new location. And the Sample Project has information about the project's cost and income as well.

The Sample Project is illustrated on the foldout page that follows. Try some of the suggestions included on the foldout page, and watch MacProject shine.

Once you've begun to use MacProject for your own projects, come back to Chapter 2, "Using MacProject." There you can find more details about creating and changing Schedule Charts and using MacProject's other chart forms, or you can review a technique you learned in this chapter but may have forgotten.



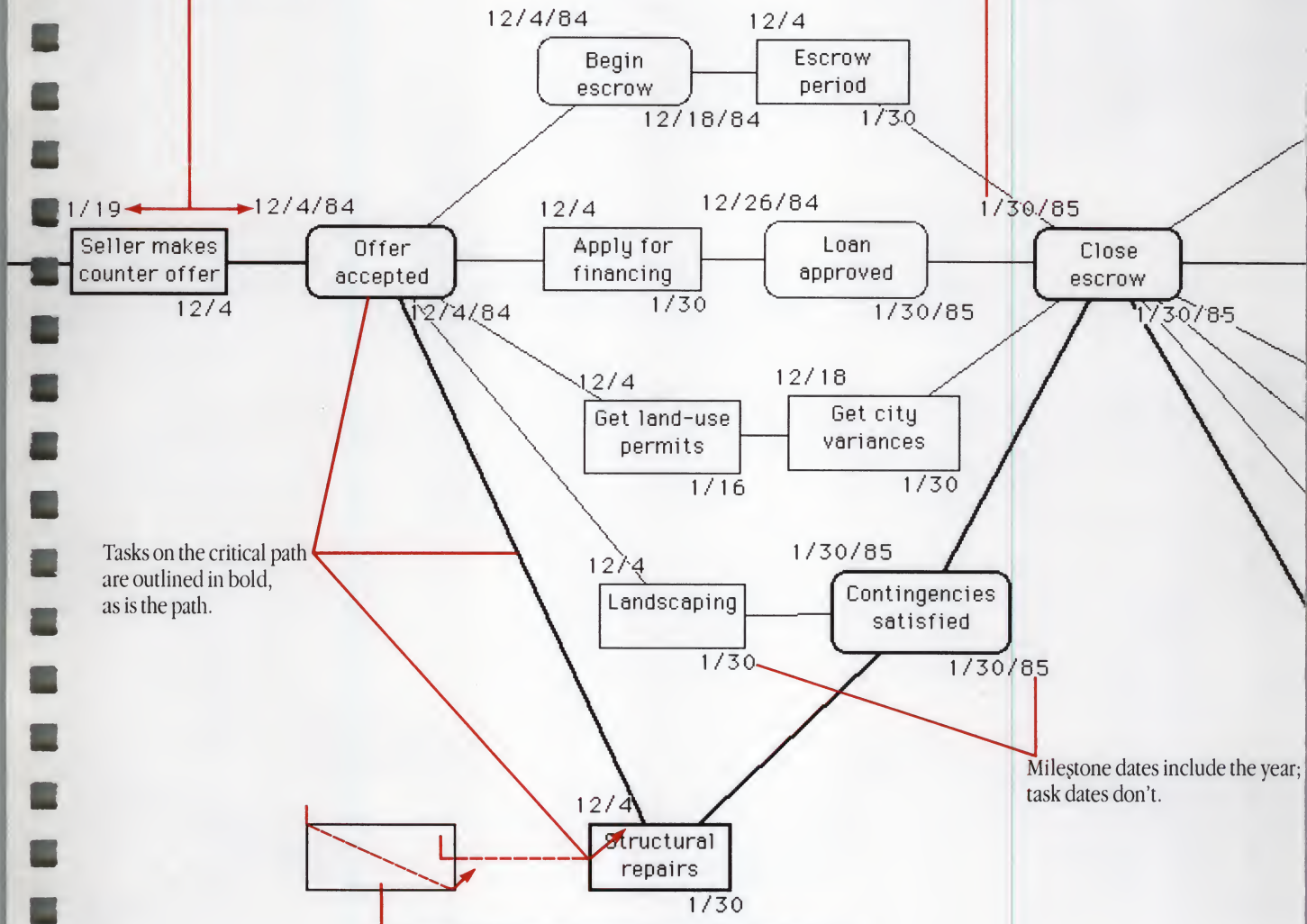
This is a Schedule Chart. To see the other charts and tables for this same project, choose from the Chart menu.

This chart displays the Earliest Start and Latest Finish dates for each task and milestone. You can display other information around each box by choosing Show Dates from the Dates menu and then clicking what you want to display at each corner of the box.

To see a bird's-eye view of any of the charts or tables, choose Show Entire Chart from the Layout menu.

The difference between these Earliest Start dates is the duration of the "Seller makes counter offer" task. Change the duration of this task by selecting it, pressing the Tab key to open the Task Info window, and typing a new duration. MacProject automatically adds duration for any weekends or holidays that fall in the middle of a task. Choose Calendar from the Dates menu to see or change the current working hours and days.

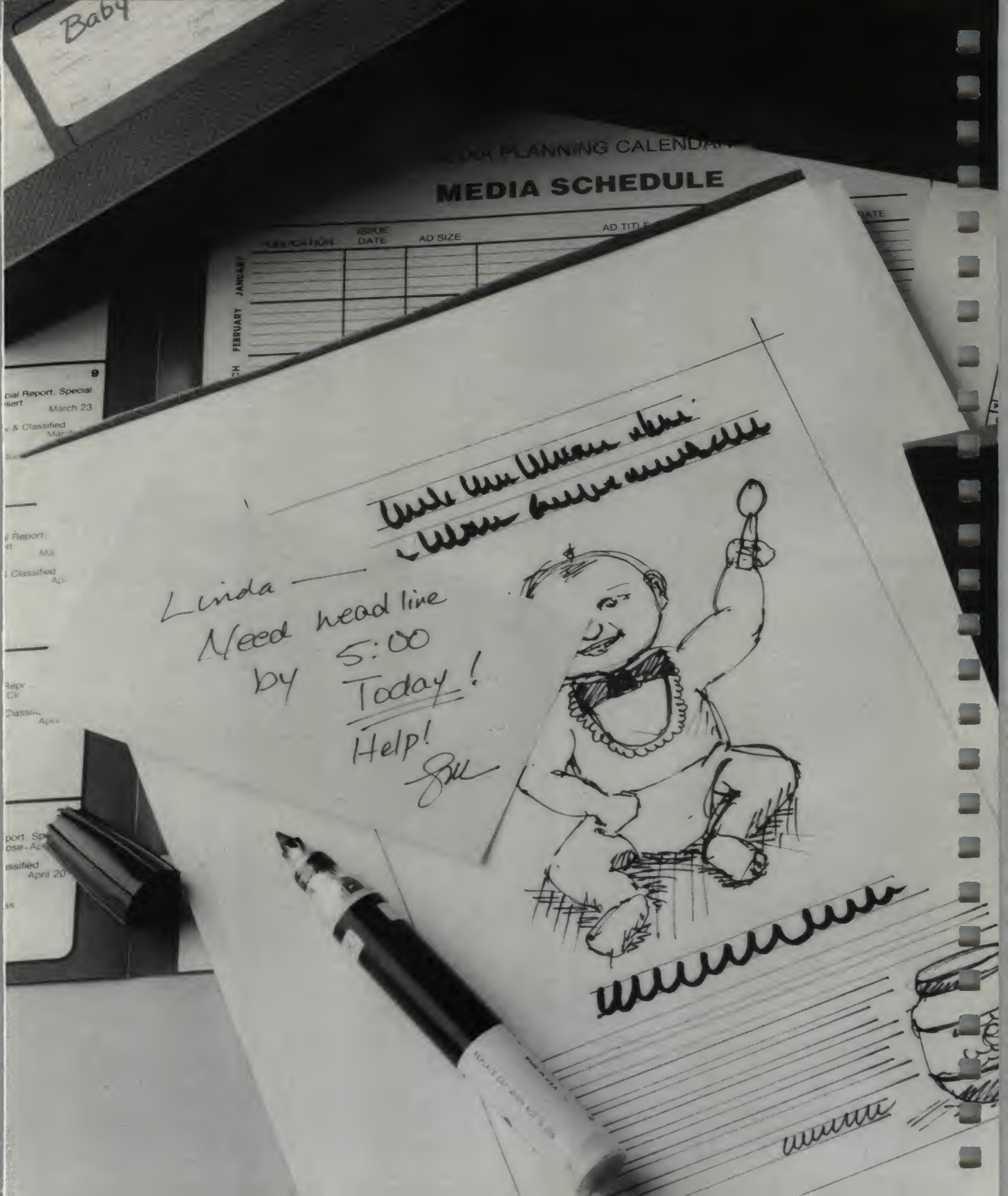
Try setting an Earliest Start date here by selecting the task and choosing Set Earliest Start from the Dates menu; it will affect dates to the right.

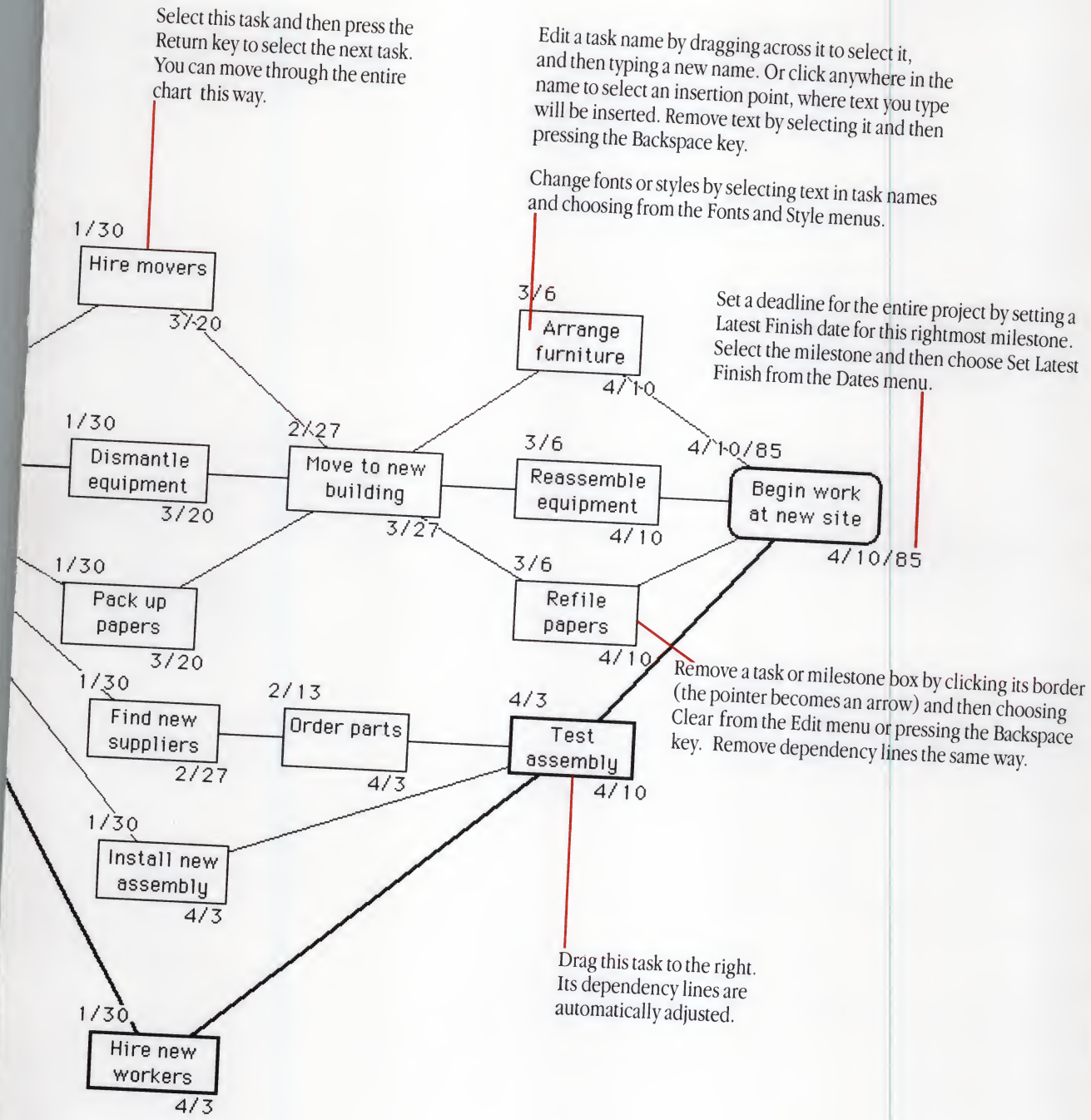


Tasks on the critical path are outlined in bold, as is the path.

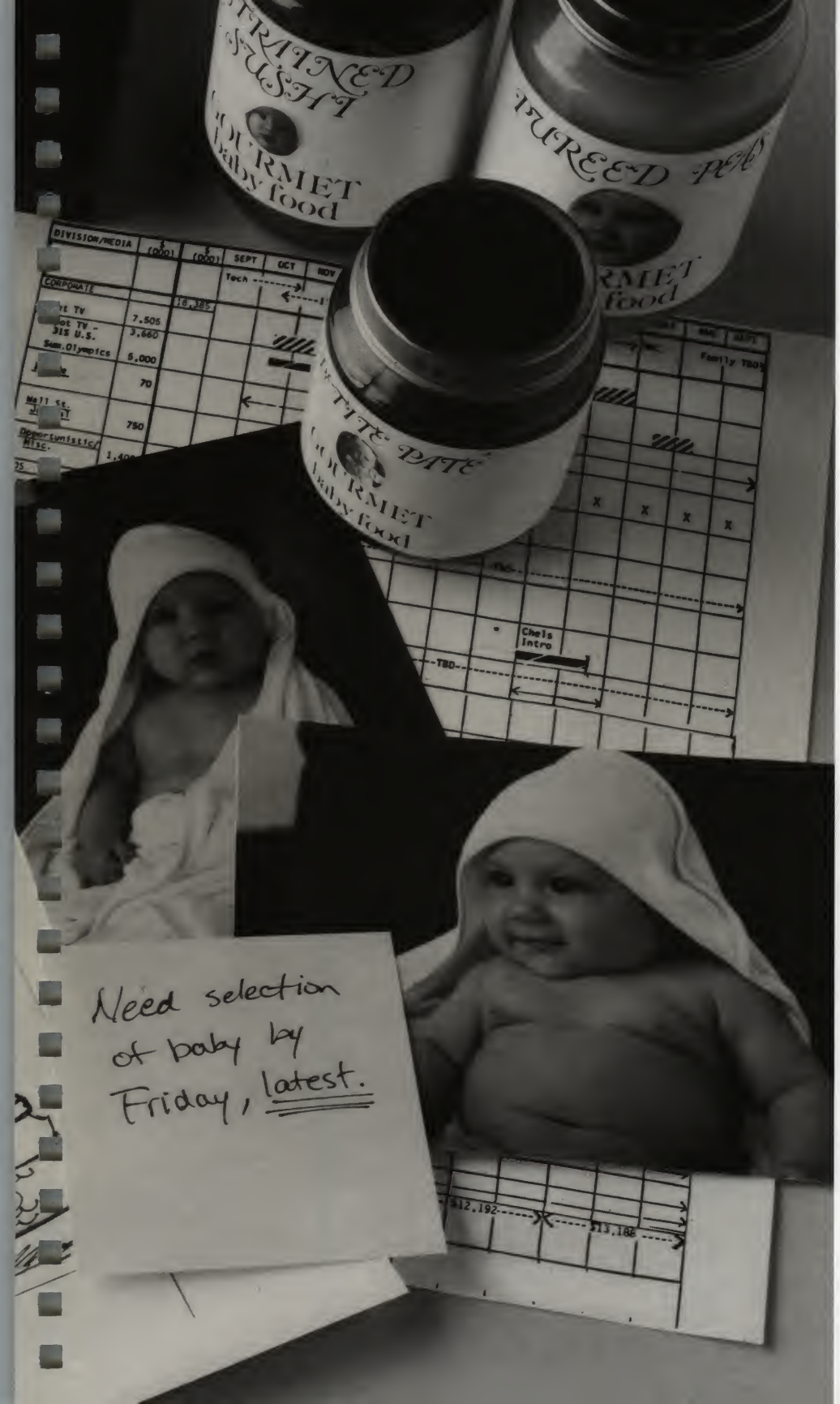
Milestone dates include the year; task dates don't.

Add a new task here or anywhere in the chart by dragging diagonally from the top left corner to the bottom right corner of where you want the new box to be. Name it by typing "Get structural report". Add a dependency line to show that the task "Structural repairs" on the right depends on this new task. To draw the dependency line, drag from inside the "Get structural report" box to inside the "Structural repairs" box.


Baby
PLANNING CALENDAR
MEDIA SCHEDULE
PUBLICATION
ISSUE DATE
AD SIZE
AD TITLE
FEBRUARY
JANUARY
Linda
Need head line
by 5:00
Today!
Help!


Select this task and then press the Return key to select the next task. You can move through the entire chart this way.
Edit a task name by dragging across it to select it, and then typing a new name. Or click anywhere in the name to select an insertion point, where text you type will be inserted. Remove text by selecting it and then pressing the Backspace key.
Change fonts or styles by selecting text in task names and choosing from the Fonts and Style menus.
Set a deadline for the entire project by setting a Latest Finish date for this rightmost milestone. Select the milestone and then choose Set Latest Finish from the Dates menu.
Remove a task or milestone box by clicking its border (the pointer becomes an arrow) and then choosing Clear from the Edit menu or pressing the Backspace key. Remove dependency lines the same way.
Drag this task to the right. Its dependency lines are automatically adjusted.
1/30
Hire movers
3/20
3/6
Arrange furniture
4/10
1/30
Dismantle equipment
3/20
2/27
Move to new building
3/27
3/6
Reassemble equipment
4/10
4/10/85
Begin work at new site
1/30
Pack up papers
3/20
3/6
Refile papers
4/10
1/30
Find new suppliers
2/27
2/13
Order parts
4/3
4/3
Test assembly
4/10
1/30
Install new assembly
4/3
1/30
Hire new workers
4/3

Lift this page to see Sample Project.



Chapter 2

Using MacProject

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40 Project Table
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46 Naming a Task or Milestone
47 Connecting Dependent Tasks
48 Adding or Changing Task Info: Duration and Resources
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52 Displaying Dates
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58 Adding New Tasks or Milestones
60 Moving Task and Milestone Boxes
62 Removing Task or Milestone Boxes or Dependency Lines
63 Arranging Task and Milestone Boxes
64 Changing the Size of a Task or Milestone Box
65 Adding Text
66 Making a Chart a Larger Size
67 Viewing the Entire Chart
68 Moving Information Between MacProject and Other Applications
70 Creating a Summary Chart
72 Setting Up a Template
73 Summary of Handling MacProject Documents

Introduction

You lay out new projects as Schedule Charts. But every MacProject document can take other forms as well — any of the charts and tables in the Chart menu. The first part of the chapter shows you what each of the MacProject charts and tables looks like. You can see how each one gives you a different perspective on your project, or lets you add or modify information about it.

Following the overview of MacProject's charts and tables, this chapter reviews and gives more detail about the techniques introduced in Chapter 1. This chapter tells you how to:

- ☐ get started with a new project
- ☐ connect tasks that depend on each other
- ☐ add or change the information MacProject needs to calculate your schedule
- ☐ display and set dates and see the project's critical path

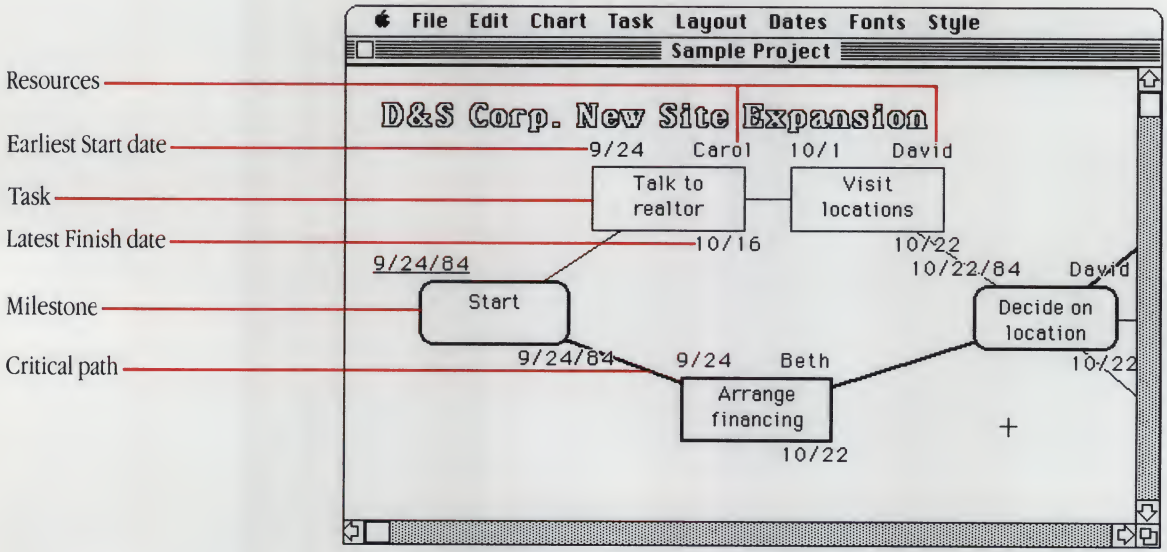
Although the chapter presents the topics in the order you'll usually use to set up a new project, you don't have to read this chapter in any particular order; each topic is independent of the others and cross-referenced where appropriate.

If you don't know how to use the mouse to click and drag, choose commands from menus, and manipulate windows, look at *Macintosh,* the owner's guide, for thorough explanations.

Schedule Chart

New projects start as Schedule Charts. You draw tasks, milestones, and the lines that show their dependencies. And you add Task Info for each task in the project. See "Adding or Changing Task Info: Duration and Resources" on page 48. The Schedule Chart lets you see both the relationship of each part of the project to other parts and the critical path of tasks that can't slip without affecting the entire schedule.

Information for MacProject's other charts and tables comes mainly from the Schedule Chart you create.

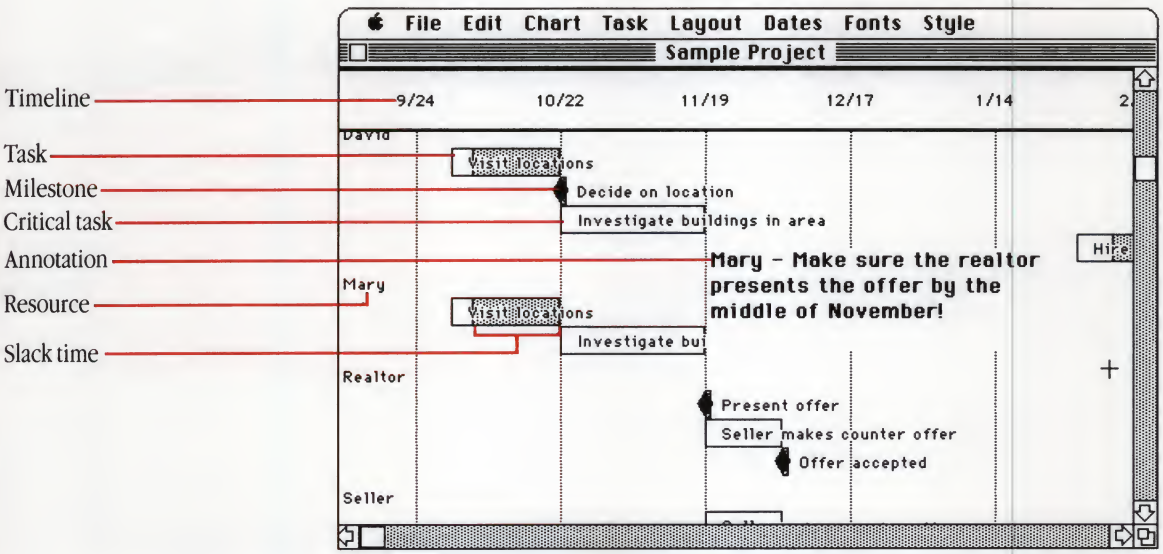


Resource Timeline

The Resource Timeline lets you see what each of your resources is doing at any time. Seeing how much work each resource has (or maybe how much use your rented office space is getting) helps you make smart decisions about dividing responsibilities or allocating material resources for the project.

You can also add Task Info or set dates in the Resource Timeline. Click a task to select it.

Slack time, which is any difference between early and late dates, is represented by gray. Tasks represented entirely in white are critical tasks. The timeline uses the increment you set for the timeline scale (by choosing Timeline Scale from the Dates menu).

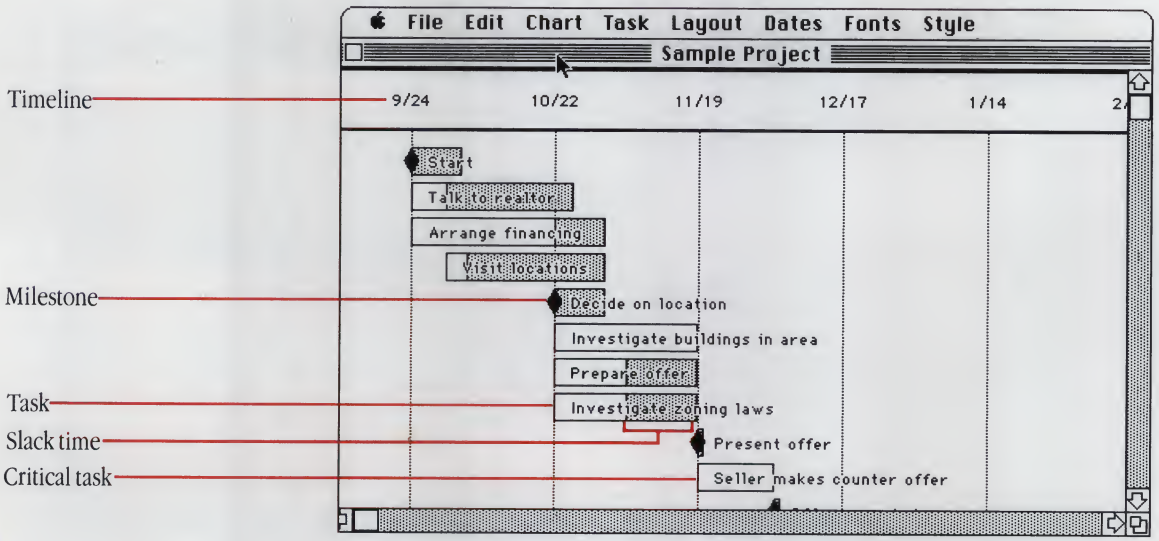


Task Timeline

The Task Timeline lets you see each of the project's tasks over time.

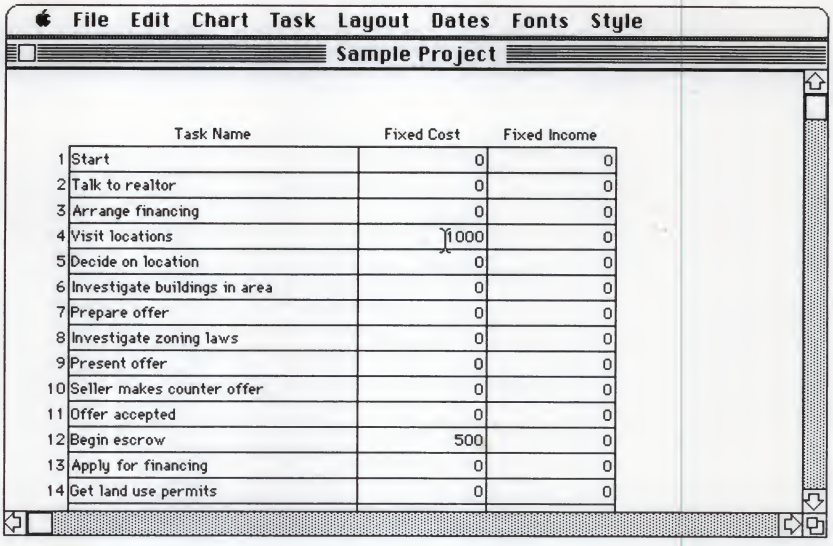
You can also add Task Info or set dates in the Task Timeline. Click a task to select it.

Slack time, which is any difference between early and late dates, is represented by gray. Tasks represented entirely in white are critical tasks. The timeline uses the increment you set for the timeline scale (by choosing Timeline Scale from the Dates menu).



Task Cost Entry

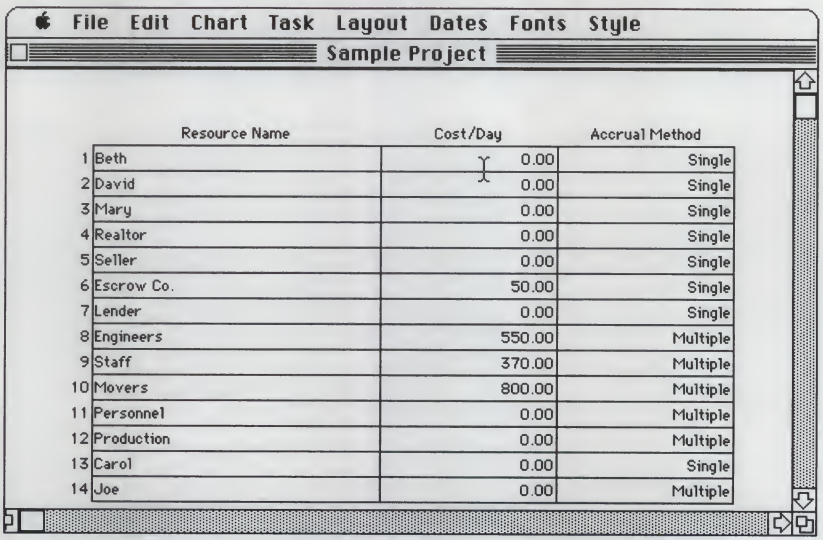
This is where you enter fixed costs and fixed income for any tasks that have them. These amounts are figured in just once for the task you assign them to.



	Task Name	Fixed Cost	Fixed Income
1	Start	0	0
2	Talk to realtor	0	0
3	Arrange financing	0	0
4	Visit locations	1000	0
5	Decide on location	0	0
6	Investigate buildings in area	0	0
7	Prepare offer	0	0
8	Investigate zoning laws	0	0
9	Present offer	0	0
10	Seller makes counter offer	0	0
11	Offer accepted	0	0
12	Begin escrow	500	0
13	Apply for financing	0	0
14	Get land use permits	0	0

Resource Cost Entry

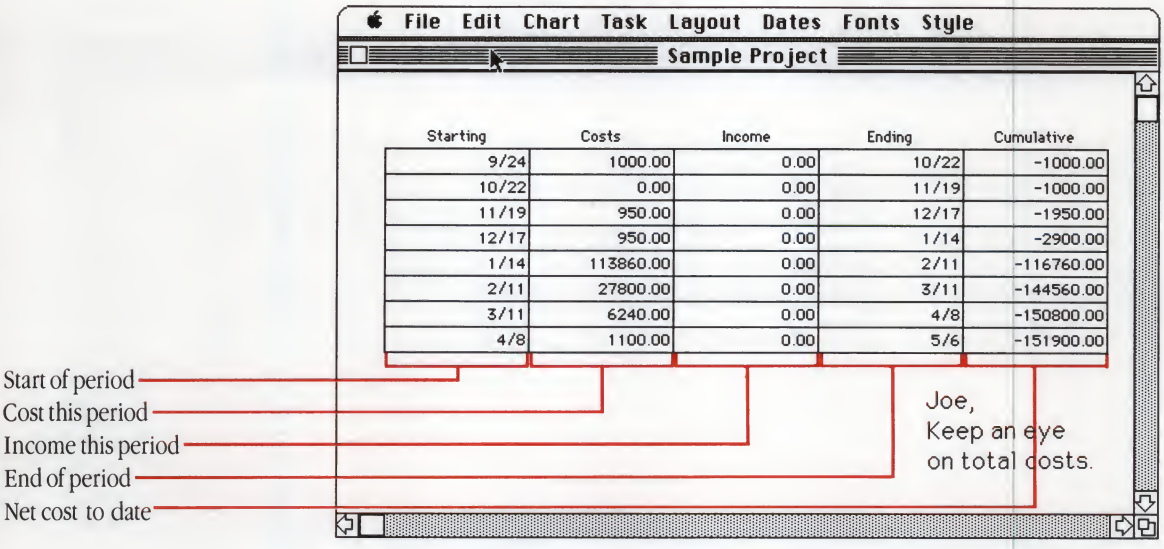
This is where you add the ongoing unit cost for each of the resources. Unit costs are different from the fixed costs you enter in the Task Cost Entry table. Fixed costs are one-time charges—the cost of materials, for example. Unit costs—salaries, or equipment rental, for example—are ongoing: they accumulate whenever this resource is being used.



	Resource Name	Cost/Day	Accrual Method
1	Beth	0.00	Single
2	David	0.00	Single
3	Mary	0.00	Single
4	Realtor	0.00	Single
5	Seller	0.00	Single
6	Escrow Co.	50.00	Single
7	Lender	0.00	Single
8	Engineers	550.00	Multiple
9	Staff	370.00	Multiple
10	Movers	800.00	Multiple
11	Personnel	0.00	Multiple
12	Production	0.00	Multiple
13	Carol	0.00	Single
14	Joe	0.00	Multiple

Cash Flow Table

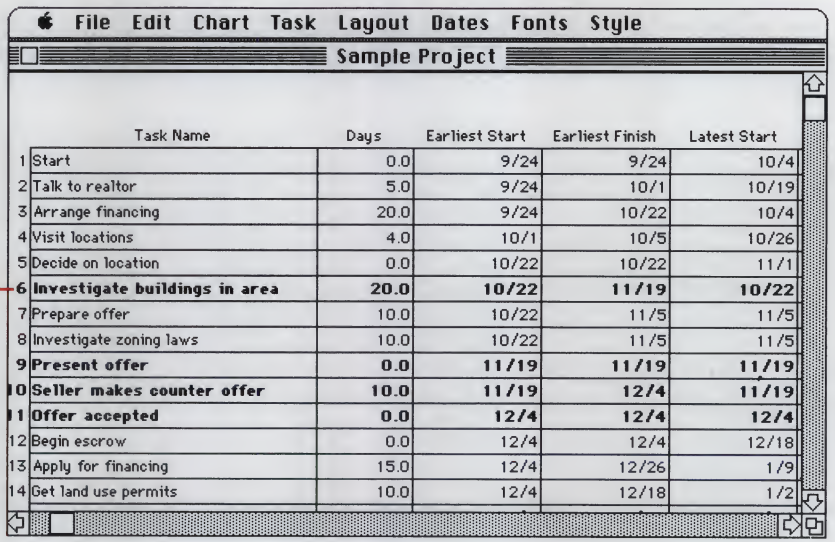
The Cash Flow Table lets you see how much money you'll have on hand at any time in the project. The dates in this table use the increment you set for the timeline scale (by choosing Timeline Scale from the Dates menu). For example, if you set the timeline scale to weeks, there's a week's difference between the dates in the first and fourth column. The second column shows the amount of money spent between the two dates; the third column shows the amount of money received as income between the two dates; the fifth column shows the cumulative cost to date.



Project Table

The Project Table gives you detailed information about the entire project. All your project's information is in table format so you can cut and paste it to a spreadsheet or data base application, or any application that uses information in a table format.

Critical tasks are shown in bold type.



	Task Name	Days	Earliest Start	Earliest Finish	Latest Start
1	Start	0.0	9/24	9/24	10/4
2	Talk to realtor	5.0	9/24	10/1	10/19
3	Arrange financing	20.0	9/24	10/22	10/4
4	Visit locations	4.0	10/1	10/5	10/26
5	Decide on location	0.0	10/22	10/22	11/1
6	**Investigate buildings in area**	**20.0**	**10/22**	**11/19**	**10/22**
7	Prepare offer	10.0	10/22	11/5	11/5
8	Investigate zoning laws	10.0	10/22	11/5	11/5
9	**Present offer**	**0.0**	**11/19**	**11/19**	**11/19**
10	**Seller makes counter offer**	**10.0**	**11/19**	**12/4**	**11/19**
11	**Offer accepted**	**0.0**	**12/4**	**12/4**	**12/4**
12	Begin escrow	0.0	12/4	12/4	12/18
13	Apply for financing	15.0	12/4	12/26	1/9
14	Get land use permits	10.0	12/4	12/18	1/2

Critical task

Steps in Creating a Project

For most projects, you'll follow a similar pattern of setting the project up and later modifying it as the project matures. Here's a checklist of things you'll usually do to set up a new project:

- ☐ Using the Schedule Chart, draw task boxes to represent each activity that needs to be completed, and create milestones to mark starting or ending places. See "Creating Task and Milestone Boxes" on page 44.
- ☐ Connect dependent tasks by drawing lines between them. See "Connecting Dependent Tasks" on page 47.
- ☐ Enter Task Info for each task. See "Adding or Changing Task Info: Duration and Resources" on page 48.
- ☐ Set the Calendar to your working hours and days. See "Setting the Calendar" on page 50.
- ☐ Tell MacProject which dates and other information you want displayed in your chart. See "Displaying Dates" on page 52.
- ☐ Set an Earliest Start date or a Latest Finish date for the project. See "Setting Dates" on page 54.
- ☐ Enter Costs. See "Costs and Income" on page 56.
- ☐ Add a title and other annotations. See "Adding Text" on page 65.
- ☐ Save your work every fifteen minutes or so by choosing Save from the File menu. See "Summary of Handling MacProject Documents" on page 73.
- ☐ Print your schedule in any of the chart forms by choosing Print from the File menu. See "The File Menu" on page 104.

Selecting

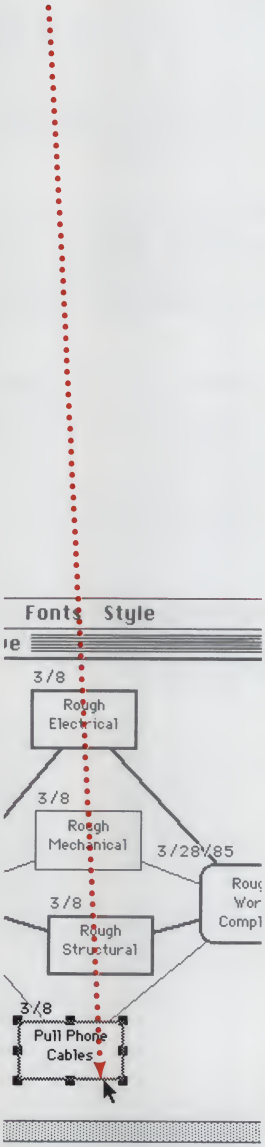
Select information, and then choose an action for it: this is the fundamental way you work with Macintosh. Like any other Macintosh application, MacProject needs to know what you want to work on before it can carry out an action you choose for that object—moving it, changing its size, or adding information about it, for instance.

You can select more than one task or milestone. When you select more than one object in MacProject, you can move the entire group of objects. Or you can cut or copy them all with their Task Info by choosing Cut or Copy from the Edit menu, or without their Task Info by choosing Duplicate from the Edit menu. You can't, however, add Task Info for more than one task at a time or change the size of more than one box at a time.

When you select two or more objects in MacProject, they are highlighted differently than when you select just one. No knobs appear when you select more than one object; instead, what was black appears white and vice versa.

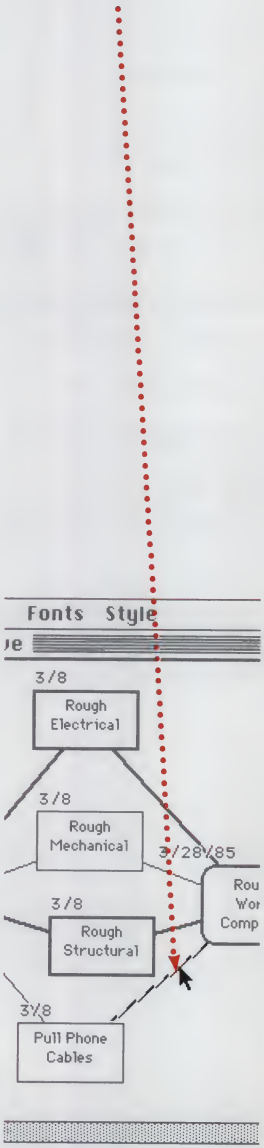
To select a task or milestone

■ Click anywhere on its border.



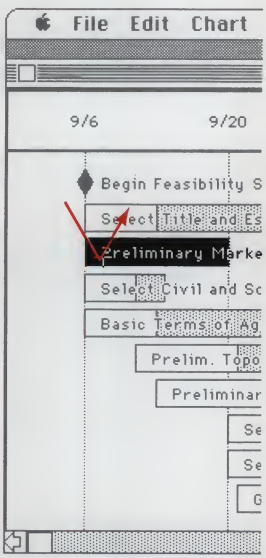
To select a dependency line

■ Click anywhere on it.



To select a task or milestone in a Task or Resource Timeline

■ Click anywhere on the task rectangle.



To select by Shift-dragging

- Hold down the Shift key while you drag diagonally to enclose the boxes you want to select.

Drag diagonally and release the mouse button when all the boxes are enclosed in a dotted rectangle. All lines between the boxes are selected as well.

To select by Shift-clicking (when objects aren't grouped together)

- Select one object by holding down the Shift key and clicking.
- Hold down the Shift key while you select additional objects.

You can also use Shift-clicking to unselect objects already selected.

To select an entire chart or table to copy or move it

- Choose Select All from the Edit menu.

To select text

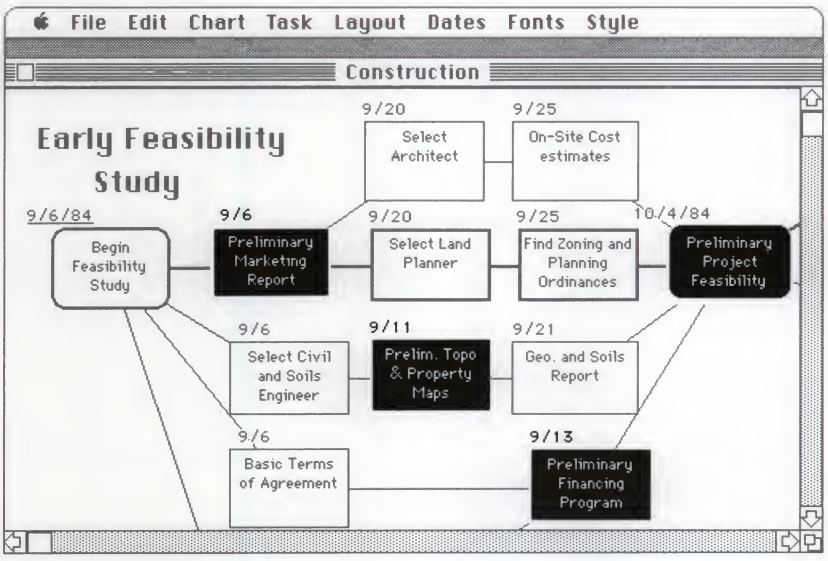
- Drag across the text (diagonally if there's more than one line) to the end of the text you want to select.

Or

- Double-click to select an entire word.

You can also select text by Shift-dragging diagonally to enclose it. You can move text you select this way the same as you move other objects.

Text in MacProject works like text in most Macintosh applications, except that font, font size, and style choices usually apply to all task and milestone names, not just the one you're editing. See "Text in MacProject" on page 100. For more information on editing text in general, see *Macintosh,* the owner's guide.



Creating Task and Milestone Boxes

There are a couple of basic ways to lay out a new project. You can draw all the tasks and then go back and add their task information later (this method helps you visualize the project right from the start), or you can add the information for each task as you go.

In drawing task boxes for a new project, don't worry about the time order you think the tasks should be done in. Concentrate instead on whether a task depends on other tasks being completed before it can be started. If so, draw it to the right of the tasks it depends on. (Later you'll connect the boxes with lines to show this dependency.)

To draw a task box

- Position the pointer where you want the top left corner of the box and drag diagonally down to the right.

Choosing Invisible Grid from the Layout menu before you draw the first box makes it easier to draw boxes the same size. When you choose Invisible Grid, MacProject automatically lines up the boxes and lines you draw on invisible grid marks.

- Type a name for the task.

Whenever you draw a new task box, an insertion point appears inside the box automatically, so you can immediately type a name for the task. See "Naming a Task or Milestone" on page 46.

Initially, MacProject displays the Earliest Start dates for all tasks. You can change this by choosing Show Dates from the Dates menu. You might want to display dates on all four corners of the task boxes when you first draw a Schedule Chart. That way you'll leave enough room to display this information and avoid crowded-looking charts later on.

If you don't get a project laid out the way you want it the first time, you can always change your chart later. Dealing with changes of any kind is one of MacProject's strong points.





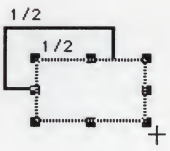
To create a task box by duplicating an existing one

- Select a task box by clicking its border.
- Choose Duplicate from the Edit menu.

You can continue to choose Duplicate until you have as many task boxes as you think you'll need. (You can always duplicate more, or you can get rid of any extras by selecting them and choosing Clear from the Edit menu.)

Use the scroll bars to have more space to draw. (MacProject will scroll automatically if you run out of room while you're drawing.) You can choose Set Chart Size from the Layout menu to make your chart larger. See "Making a Chart a Larger Size" on page 66.





To create a dependent task box automatically

- Drag a connecting line from an existing task to a white space.

This is a shortcut you'll probably use often once you become a MacProject expert. It creates a new task that is dependent on the task you started drawing the line from.

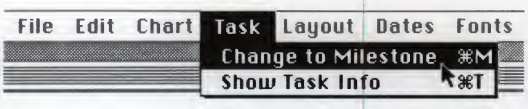
To change a task box into a milestone box

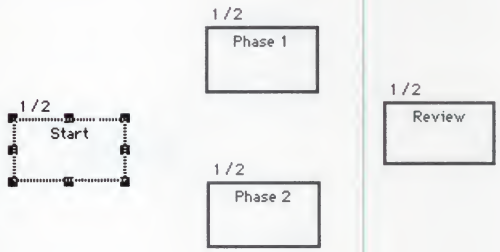
You use milestones to mark starting or ending points, or goals met along the way. When you start a new project, you usually create a milestone box leftmost in the Schedule Chart and set a start date for the entire project. If you want MacProject to calculate when you have to get started to meet a deadline, you create a milestone box rightmost in the Schedule Chart and set the deadline date there. See "Setting Dates" on page 54.

- Select the task box you want to change to a milestone box.
- Choose Change to Milestone from the Task menu.

You can turn a milestone box back into a task box by selecting it and choosing Change to Task from the Task menu.

When you display dates around task and milestone boxes, milestone boxes include the year as well as the month and day.





Naming a Task or Milestone

You can name a task or milestone anytime by clicking inside its box to select an insertion point. Usually you'll name tasks as you draw their boxes; an insertion point appears automatically whenever you draw a new box.

1. If necessary, select an insertion point inside the task box that represents the task you want to name.

The insertion point will appear automatically if you've just created the box by drawing it.

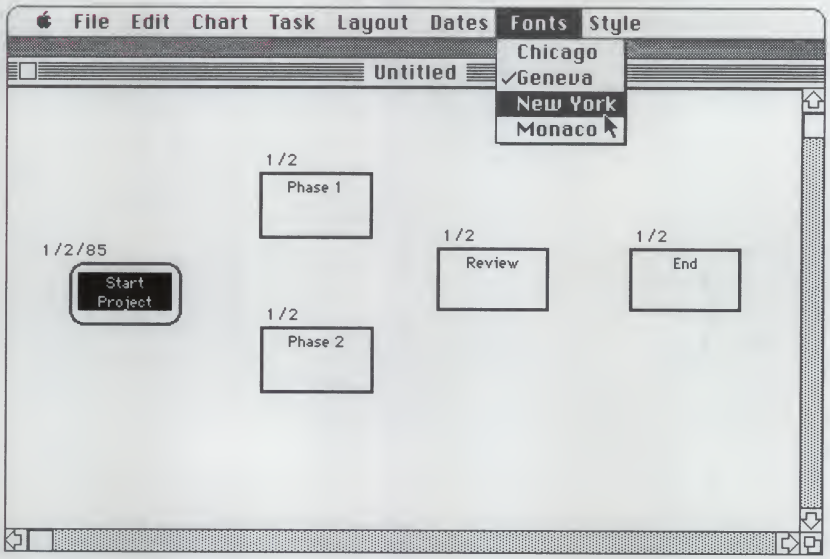
2. Type a descriptive name for the task.

Text you type is centered on the line automatically and wrapped to the next line when necessary. You can also move to the next line by pressing the Return key.

Choose a name that gives as much information as possible about the task, but try to keep the name short. Though you may not be able to see the entire task name because the box is too small, it's all there. You can see all of it by selecting the box and dragging a knob to make the box larger. But you'll probably want to keep names fairly short and boxes fairly small to make the chart as compact as possible.

You can edit text in task names in the usual way. Use any of the fonts, styles, and font sizes in the Fonts and Style menus.

Choices you make in these menus will affect all task names and displayed dates whenever you use the Schedule Chart. (Other charts and tables will use the preset choices; you can change them as well.) Style choices other than font size don't apply to information (such as dates and costs) MacProject places around the box. See "Text in MacProject" on page 100.



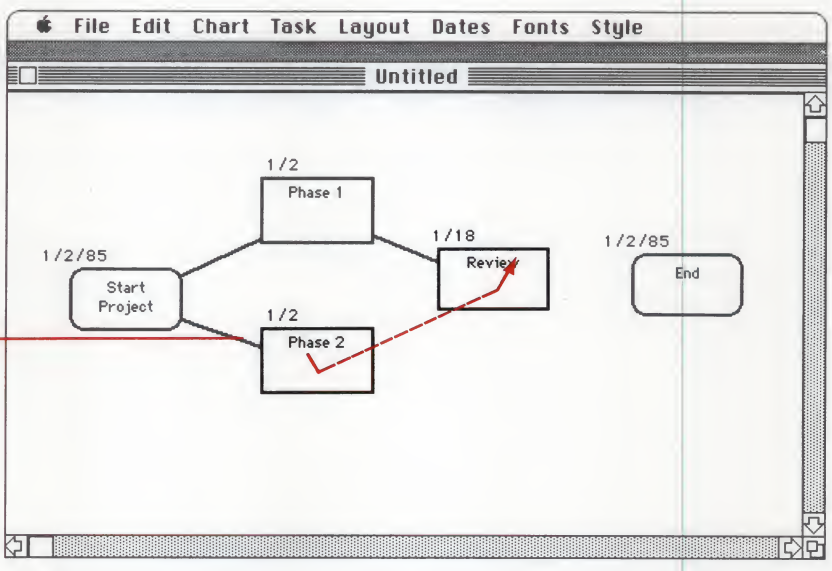
Connecting Dependent Tasks

When a task or milestone depends on another task or group of tasks—when it can't get started until the first task is completed—you connect the tasks by drawing a line between them. The center of the dependent task must be to the right of the center of the task it depends on. It doesn't matter whether the dependent task is above or below the task it depends on.

Drag from inside the task that needs to be done first to the task that depends on it.

Start dragging anywhere inside the first task box; end anywhere inside the second box. You can drag only from left to right when drawing dependency lines.

MacProject pays close attention to your actions. If you start dragging over text, it will highlight the text to show you're selecting it. But as soon as you drag outside the task box, MacProject knows you want to draw a dependency line, and does so.



Adding or Changing Task Info: Duration and Resources

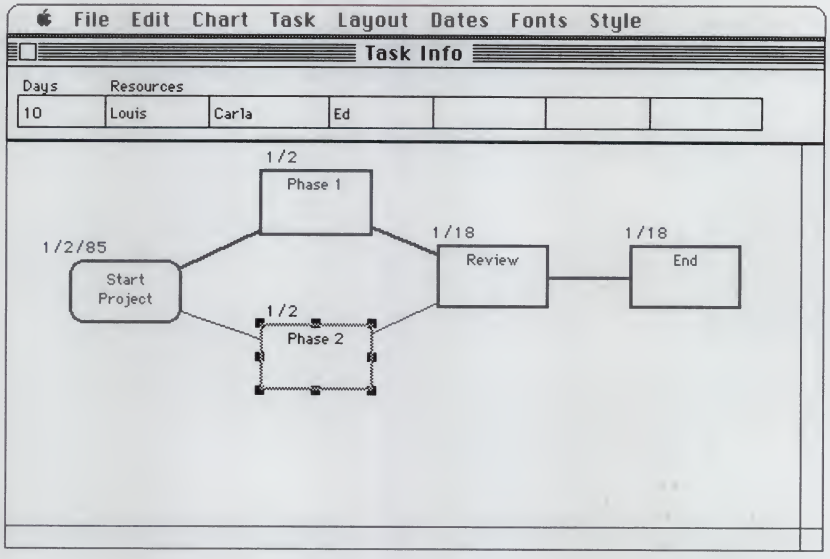
To calculate schedules and costs, MacProject needs information about each task in your project—such as how long it will take, how much it will cost, and who's responsible for it. As the project evolves, this information may change. You can add or change information about a task whenever the task is selected.

1. Select the box that represents the task whose information you want to enter or change.

To select the box, click anywhere on its border. (The pointer changes to an arrow to let you know when you're positioned in the right place.)

2. Choose Show Task Info from the Task menu (or press the Tab key).

Once you've opened the Task Info window, it stays on the desktop until you choose Hide Task Info or click the close box on the left of the title bar. The Task Info window always shows information about any currently selected task.



3. Fill in the blanks by typing. Use the Tab key to select the first blank or click in any blank to edit it.

You can edit information in the Task Info window the way you edit text in most Macintosh applications. Use the Backspace key if you make a mistake or to delete the selection.

Press the Tab key to move to the next blank. Press the Enter key to cause MacProject to recalculate the schedule. Press the Return key to recalculate and select the next task. Click in the document window to recalculate and make that window active.

You can remove a resource from a task by editing the Task Info window. Editing the resource information here doesn't affect the entire project's resource information, however. To remove the resource from the entire project, choose Delete Resource from the Edit menu and type the name of the resource you want to remove.

Milestones are events—highlights or starting or stopping points. They don't have any duration, so don't add duration information for them.

You can also enter Task Info for a task or milestone without selecting it first. If you click inside the box, and then make the Task Info window active, you can edit Task Info for the task or milestone you clicked in.

Setting the Calendar

You tell MacProject what the working hours are, and which days are working days. MacProject makes some preset assumptions; you can change the Calendar to mark your own hours and your holidays for every month in your project's schedule. If you decide to work weekends, for example, you can see instantly the effect it would have on your schedule.

1. Choose Calendar from the Dates menu.

A dialog box appears, with a 24-hour clock, a calendar representing a month in your project, and a year range for the entire project.

White represents working time, and black represents time off.

2. Set the working hours by clicking single hours or dragging through a group of hours.

3. Set the year range of your project in years by clicking the beginning or ending year in the calendar range and scrolling forward (up arrow) or backward (down arrow).

Scroll through the calendar to other months by clicking the month or the year and using the scroll arrows to go forward (up arrow) or backward (down arrow).

When MacProject calculates a date that is beyond the range of the project, "??" appears in place of the date. You might want to expand the year range of your project.

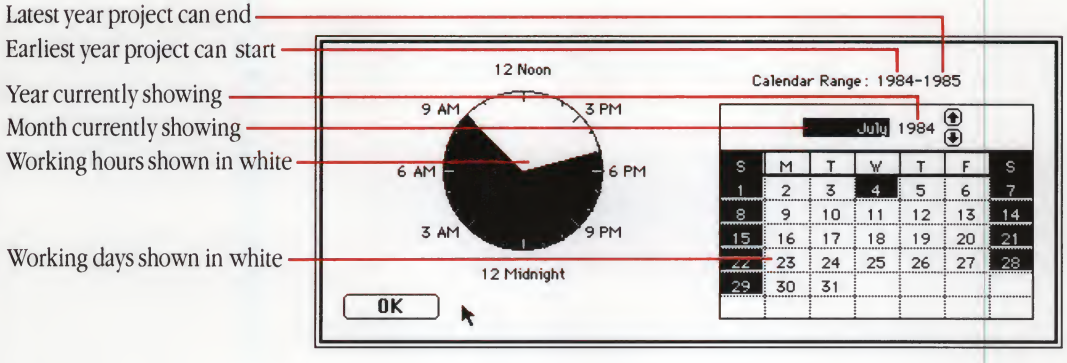
4. Set the working days in the calendar by clicking a single day or dragging through a group of days.

White represents working time, and black represents time off.

MacProject presets some holidays in 1984 and 1985. You can change these.

Clicking a day of the week (at the top of the calendar) changes every day in that column.

5. Click OK to set the Calendar and return to the chart or table you were working with.



Displaying Dates

1. Choose Show Dates from the Dates menu.

MacProject shows a dialog box with several choices of items to display in each corner of each task or milestone box. Items you click will be displayed in the corresponding corner of the box. Clicking another item in the same list unselects any currently checked item. Clicking a checked item turns it off. If none of the items in a list is checked, nothing will be displayed in the corresponding corner of the boxes.

2. Click a date or other label to be displayed in each corner.

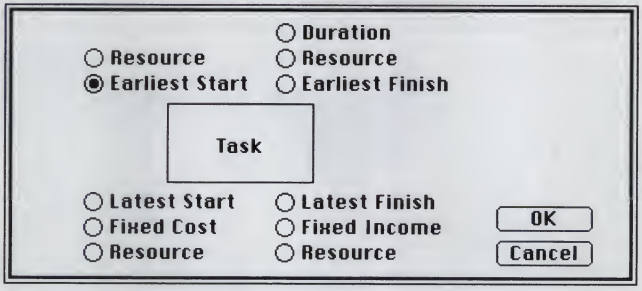
- Earliest Start shows the earliest date on which you can start the task, given the tasks it depends on.
- Earliest Finish shows the earliest date on which you can expect to be finished.
- Latest Start shows the last possible date on which you can start and still finish the project on time.
- Latest Finish shows the date by which you must finish to not slip the schedule.

3. Click the OK button.

To make charts easier to read, dates around task boxes include only the month and the day; dates around milestone boxes include the year as well.

When you display resources, the resource in the first blank of the Task Info window is displayed if you display just one resource, the resource in the second blank is displayed if you display two resources, and so on.

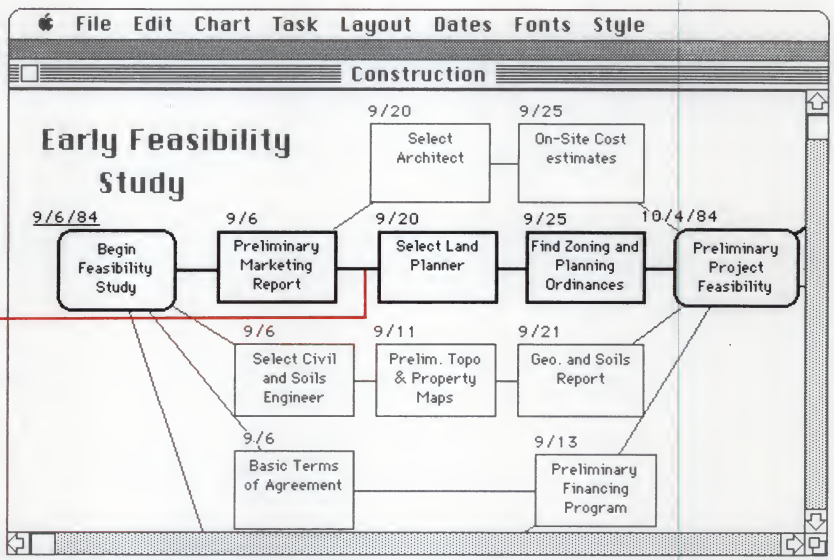
Whenever you display dates in the Schedule Chart, MacProject also shows in bold the project's critical path—the sequence of tasks whose schedule can't slip without affecting the entire project's schedule. See "Seeing the Critical Path" on page 53.



Seeing the Critical Path

The critical path—the sequence of tasks that can't slip without affecting the entire schedule—can change according to changing dependencies or durations. MacProject recalculates and shows you the current critical path whenever you make a change to the schedule.

MacProject displays the critical path whenever you display dates or any other task information around task and milestone boxes. See "Displaying Dates" on the facing page.



Setting Dates

With most projects, you set at least one fixed date—usually a starting date or a deadline—and let MacProject calculate the rest of the dates for you based on tasks' durations and dependencies you tell it about. The dates MacProject calculates change as durations and dependencies within the project change, or whenever you change or add a fixed date.

Since fixed dates always override any dates MacProject calculates, let MacProject calculate dates whenever possible. Just set the ones you know are fixed. That way MacProject can calculate the best possible schedule for you.

Tell MacProject which dates or other task information you want to see displayed around the task boxes by choosing Show Dates from the Dates menu and clicking what you want displayed. See "Displaying Dates" on page 52.

Dates you set (rather than let MacProject calculate) appear underlined in the chart. If the date is impossible to meet, given task dependencies, durations, and other dates you've set, it appears in bold type. The Latest Start and Latest Finish dates to the left of the bold date will be calculated using this date.

If you don't set a start date for a starting task or milestone—that is, one that doesn't depend on other tasks or milestones—MacProject uses the first working day of the first year in the project's year range.

Set a start date for the entire project by setting one for the leftmost task or milestone in the chart.

To set a starting date for a task or milestone

Set an Earliest Start date for a leftmost milestone or task when you begin a new project. Set one whenever you know a task can't get started until a fixed date.

- Select the task or milestone whose start date you want to set.
- Choose Set Earliest Start from the Dates menu.

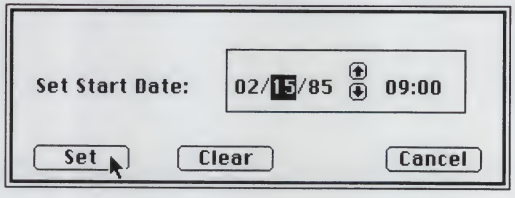
The dialog box that appears lets you set the earliest possible starting date for the milestone or task you selected.

- Click the digits you want to set.
- Click or press the forward (up) or backward (down) arrow to scroll the selected digits, or use the keyboard to type.
- Click Set or press the Return key.

MacProject uses this date as the earliest date you can start the selected task or milestone.

When you set a start date, look at the Earliest Finish dates for all subsequent tasks to see the earliest you can be finished with each task and the project.

You can clear dates you set (and let MacProject calculate again) by selecting the task whose date you want to clear, choosing Set Earliest Start from the Dates menu, and clicking the Clear button. Now MacProject will use the date it calculates rather than one you set.



To set a finish date for a task or milestone

Set a Latest Finish date when you have a deadline to meet, and let MacProject calculate when all the tasks leading to the deadline have to get started in order to meet the deadline.

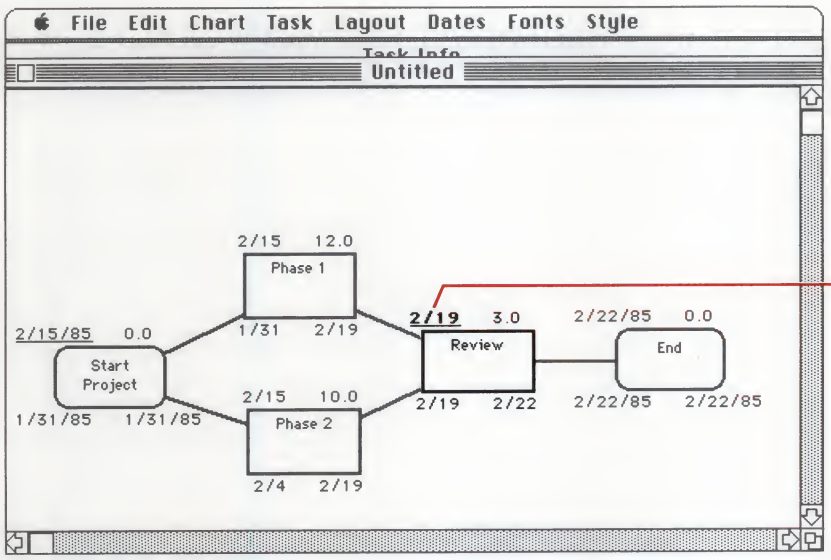
- Select the task whose finish date you want to set.
- Choose Set Latest Finish from the Dates menu.

The dialog box that appears lets you set the latest possible finish date for the task you selected.

- Click the digits you want to set.
- Click or press the forward (up) or backward (down) arrow to scroll the selected digits, or use the keyboard to type.
- Click Set or press the Return key.

MacProject uses this date as the deadline for finishing the selected task.

You can clear dates you set (and let MacProject calculate again) by selecting the task whose date you want to clear, choosing Set Latest Finish from the Dates menu, and clicking the Clear button. Now MacProject will use the date it calculates rather than one you set.



Dates impossible to meet are shown in bold.

Costs and Income

For most projects there are two kinds of costs: one-time or fixed costs, and ongoing costs—resources' unit costs that accumulate during a task's duration. MacProject keeps track of both kinds of costs.

To enter a task's fixed costs

- If necessary, add the task to the Schedule Chart.
- Choose Task Cost Entry from the Chart menu.
- Select the blank that represents the fixed costs for the task whose cost you want to enter.

Click to select an insertion point; double-click to select the entire blank.

- Type the cost you want to enter.

Task costs can be whole numbers only.

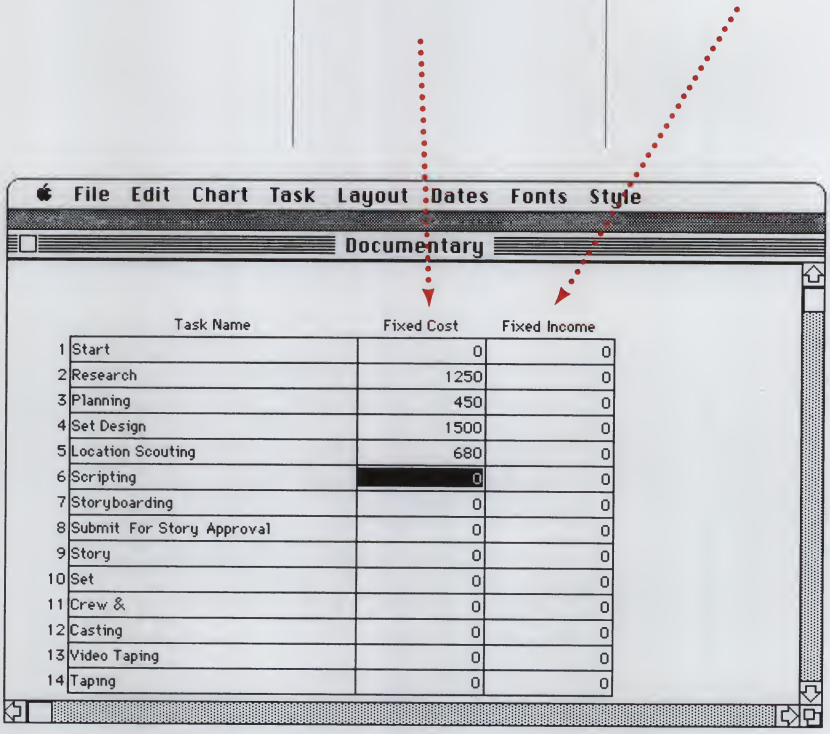
To enter a task's fixed income

- If necessary, add the task to the Schedule Chart.
- Choose Task Cost Entry from the Chart menu.
- Select the blank that represents the fixed income for the task whose income you want to enter.

Click to select an insertion point; double-click to select the entire blank.

- Type the income you want to enter.

Task income can be in whole numbers only.



	Task Name	Fixed Cost	Fixed Income
1	Start	0	0
2	Research	1250	0
3	Planning	450	0
4	Set Design	1500	0
5	Location Scouting	680	0
6	Scripting	0	0
7	Storyboarding	0	0
8	Submit For Story Approval	0	0
9	Story	0	0
10	Set	0	0
11	Crew &	0	0
12	Casting	0	0
13	Video Taping	0	0
14	Taping	0	0

To enter a resource's ongoing costs

- If necessary, add the resource's name to at least one task by entering it in that task's Task Info window. This will let MacProject know you're using this resource in this project.
- Choose Resource Cost Entry from the Chart menu.
- Select the blank that represents the unit cost you want to enter.

Each of the resources you've added in the Task Info window appears in this table. Each resource has a blank to its right that represents how much that resource costs per day, week, hour, or whatever duration scale you set by choosing Duration Scale from the Dates menu.

- Type the unit cost.
- Click the Accrual Method blank to toggle the accrual method between Single and Multiple.

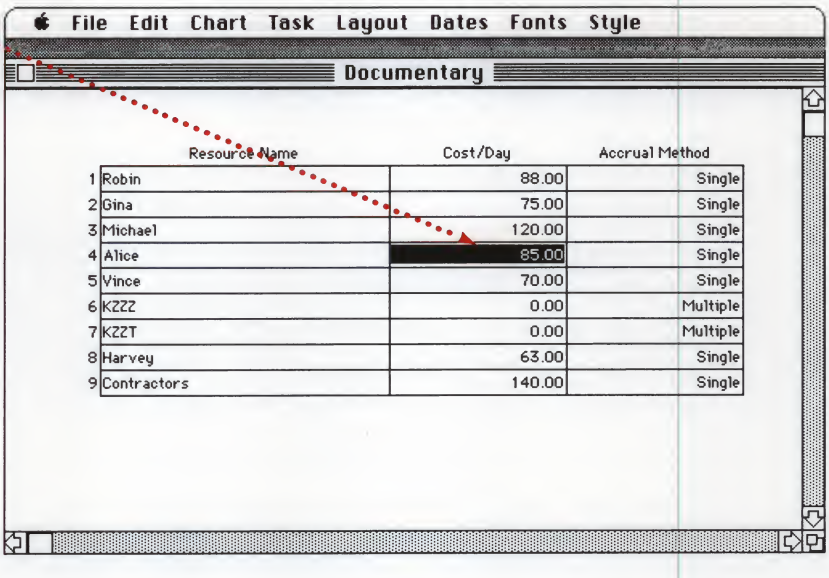
Single accrual divides the unit cost among any tasks using the resource on a single day; multiple accrual assigns the full cost to each task using the resource on a single day.

Resource costs can be whole or decimal numbers.

To see incremental and cumulative costs and income

- Choose Cash Flow Table from the Chart menu.

This table shows you both incremental and cumulative costs and income for the project. It reflects both fixed and ongoing costs. You can change the increment between Starting and Ending dates by choosing Timeline Scale from the Dates menu.



Adding New Tasks or Milestones

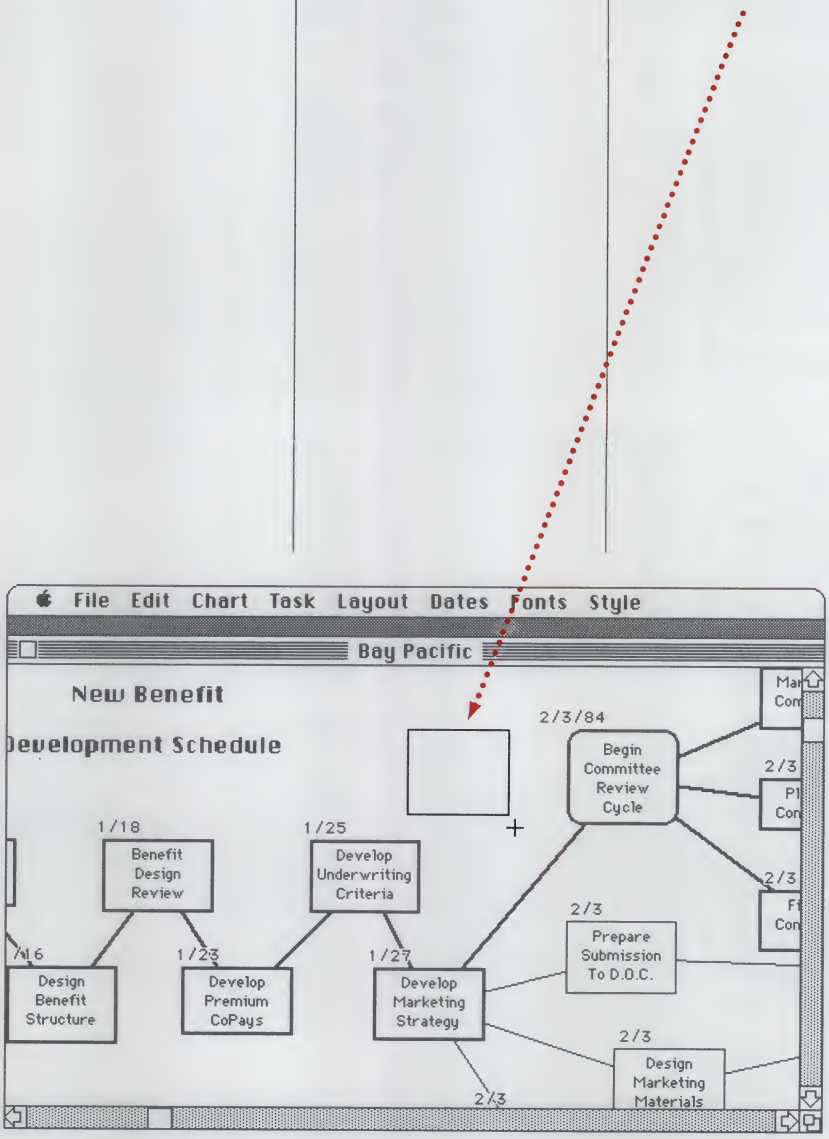
You can add tasks or milestones to a project whenever you want. MacProject will instantly calculate them into your schedule.

1. If necessary, move existing boxes to make room in the chart for the new box or boxes.

See "Arranging Task and Milestone Boxes" on page 63.

2. Create a new box or boxes where you want to add the tasks or milestones.

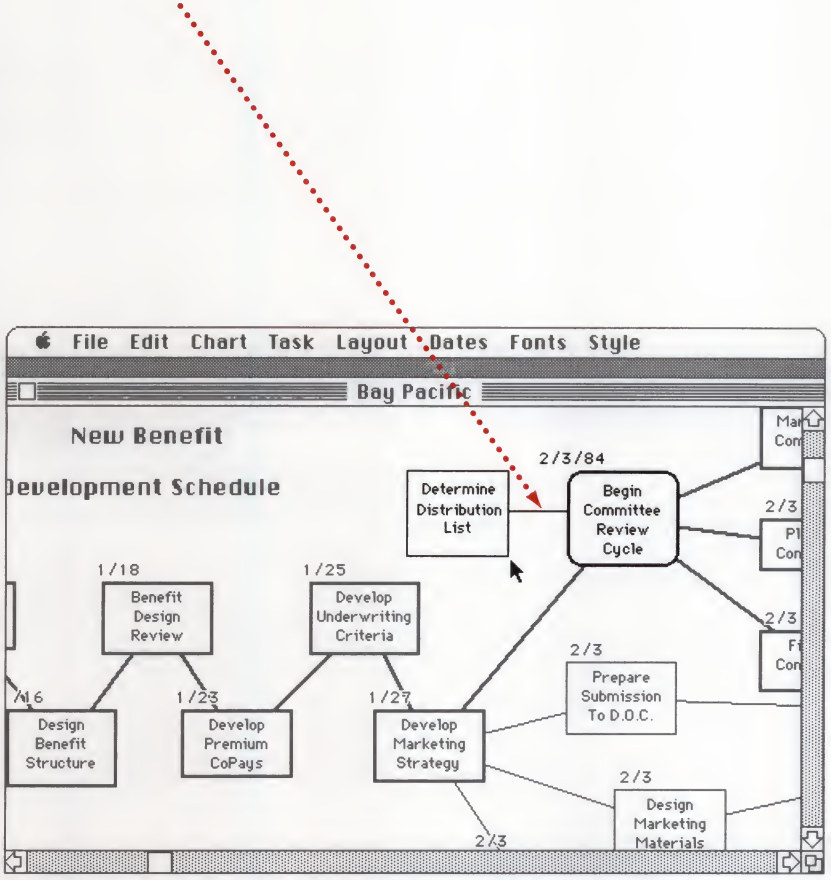
See "Creating Task and Milestone Boxes" on page 44.



3. Add any necessary lines to show new dependencies.

See "Connecting Dependent Tasks" on page 47.

Make sure the dependent tasks are on the right of tasks they depend on, and draw the dependency lines from left to right. Prevent "orphan" tasks by making sure every task leads to the project's end, either directly or through other tasks.



Moving Task and Milestone Boxes

You can move a task or milestone or a group of them to another part of the Schedule Chart using the Cut and Paste commands. You might do this when dependencies change, or when you discover a task or group of tasks can just as easily be done earlier or later, when resources are less busy or money is more available.

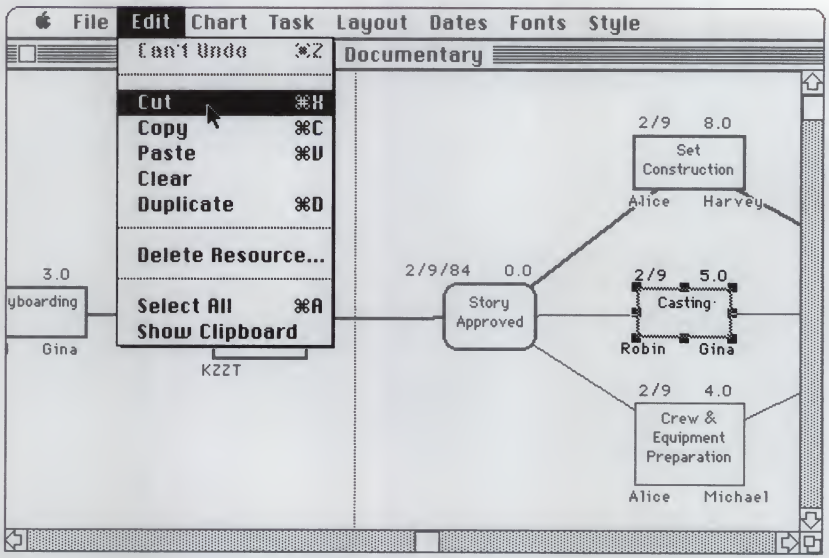
Cutting and pasting in MacProject works the same way it does in any Macintosh application. What you cut (or copy if you choose Copy) is placed on the Clipboard until you next choose Cut or Copy. When you choose Paste, the current contents of the Clipboard are placed at the insertion point.

1. Select what you want to move.

You can select single boxes, groups of boxes, a single line, or the entire chart. See "Selecting" on page 42.

2. Choose Cut from the Edit menu.

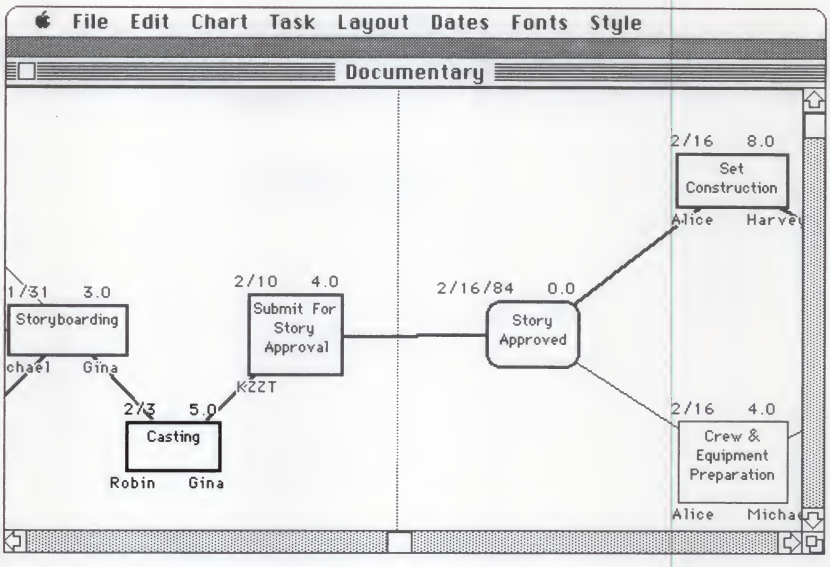
The selected objects, with all task information and dates, are removed. Any connecting lines from or to them are also removed.



3. Click to select an insertion point where you want the box or boxes moved.

4. Choose Paste from the Edit menu.

5. Add any necessary dependency lines.



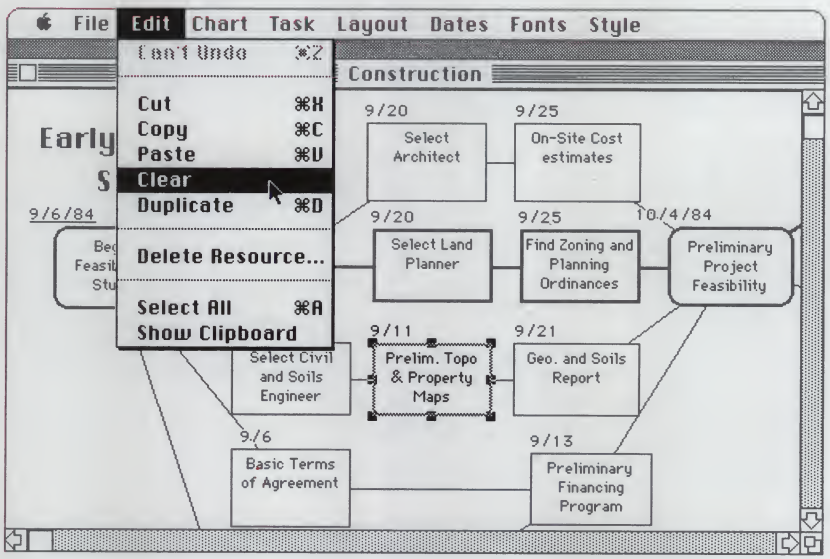
Removing Task or Milestone Boxes or Dependency Lines

1. Select what you want to remove.

You can select single boxes, groups of boxes, a single line, or the entire chart. See "Selecting" on page 42.

2. Choose Clear from the Edit menu or press the Backspace key.

The selected box or boxes are removed, as are all task information and dates. Any connecting lines from or to them are also removed. You can also use the Cut command in the Edit menu to do this. The only difference is that the Cut command places the selection on the Clipboard, from which it can be pasted somewhere else. The Clear command simply removes the selection.



Arranging Task and Milestone Boxes

Sometimes you want to rearrange your chart without making any content changes to it. You just want it to look neater. MacProject lets you do this by dragging task or milestone boxes. It adjusts the dependency lines automatically.

Another way to produce neat charts is to choose the Invisible Grid from the Format menu before you start drawing or later, when you're rearranging the boxes.

To move a single task or milestone

- Position the pointer anywhere on its border except on a knob, and drag it in the direction you want to move it.

You don't need to select a box before you move it; moving a box also selects it. If it's already selected, position the pointer anywhere on the box's border except on one of the knobs. The knobs are for changing the size of the box.

If you drag the box beyond what's currently visible in the window, MacProject will scroll automatically.

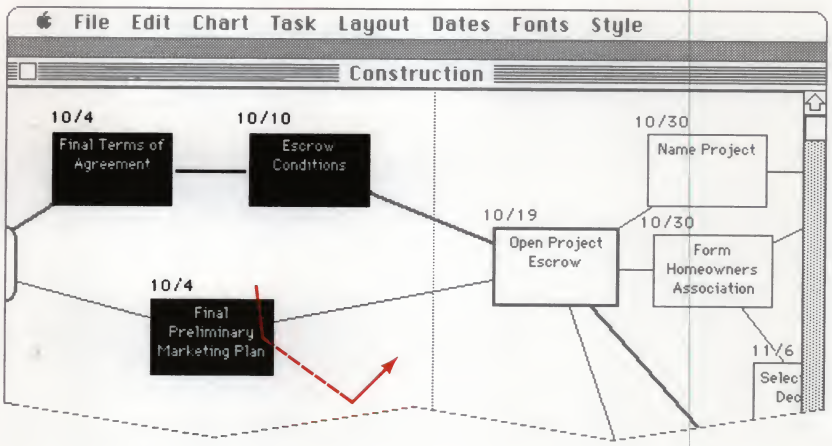
If you drag a box past tasks or milestones it's connected to, MacProject will also move the other boxes, maintaining the dependency lines. This allows you to move entire sections of the chart easily so you have more room to draw new tasks.

To move a group of tasks or milestones

- Select the boxes you want to move.

See "Selecting" on page 42.

- Position the pointer on one of the boxes and drag in the direction you want to move the group.



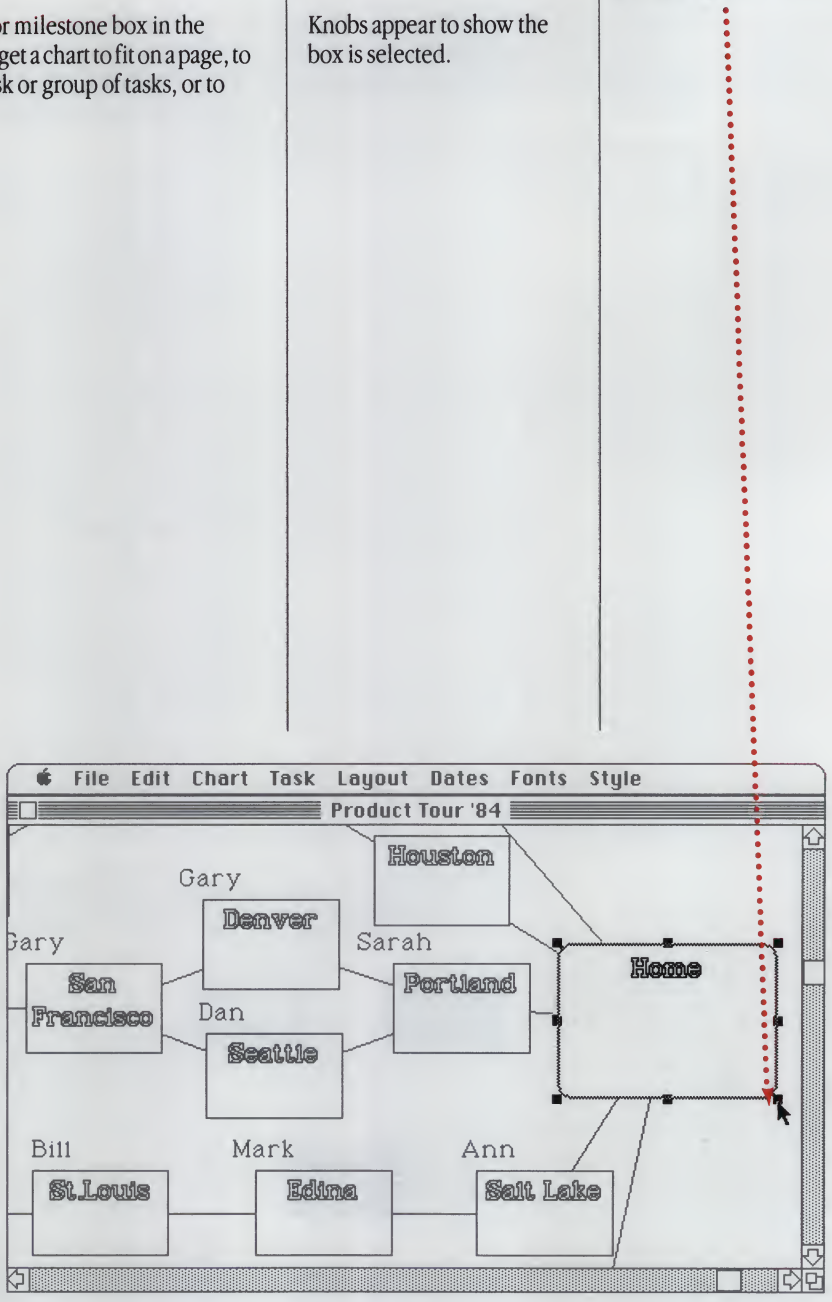
Changing the Size of a Task or Milestone Box

You can change the size of any task or milestone box in the Schedule Chart. You might do this to get a chart to fit on a page, to change the visual importance of a task or group of tasks, or to have more room for task names.

1. Select the task or milestone box you want to change by clicking anywhere on its border.

Knobs appear to show the box is selected.

2. Position the pointer on any of the knobs and drag outward or inward to expand or contract the box in the direction you drag.



Adding Text

You can add descriptive text to any of the charts or tables. The text might be a title for the project or subtitles or notes about a task or group of tasks. You could title Resource or Task Timelines so they're instantly recognizable. You might include a legend that explains what Task Info appears around task boxes in the Schedule Chart.

You can add descriptive text anywhere except inside a task or milestone box. (Text there is reserved for the names of tasks.) Text you add to a chart or table appears only in that chart or table form.

1. Click to select an insertion point in any white space in any chart or table.

Don't, however, click inside a box, on a connecting line, or inside a blank. Clicking in those places has different meanings.

2. Type the title or annotation.

Use the Backspace key to back up and erase any mistakes, or use any of the commands in the Edit menu to make changes to the text.

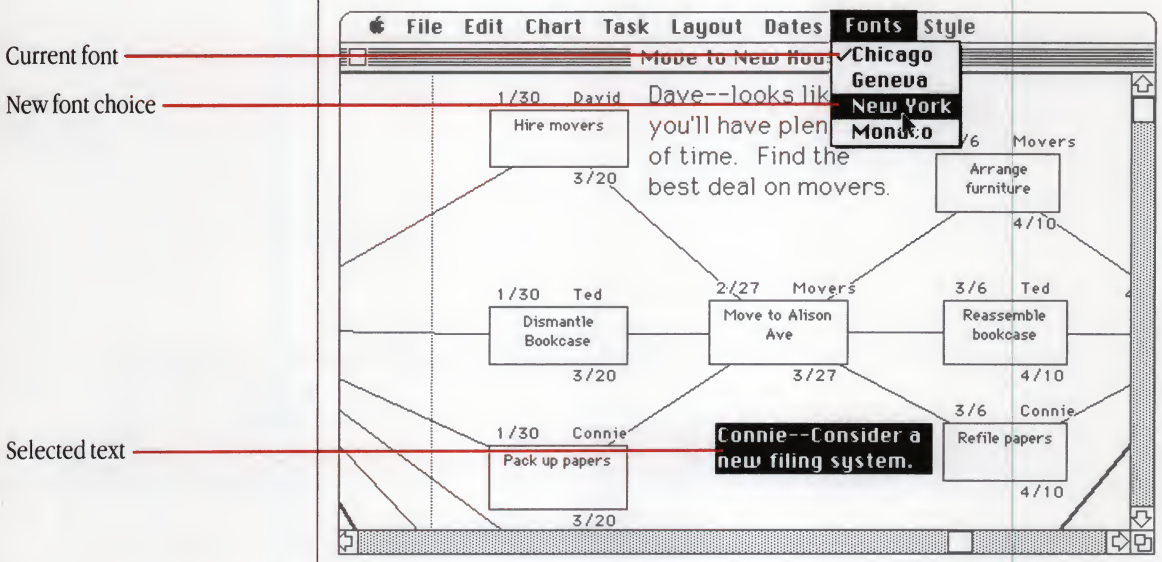
3. If you want to change the font or style of the annotation, use the Fonts or Style menu.

Text in each annotation shares the same font, font size, and style choices.

Each time you click in white space other than inside a task or milestone box, you start a new annotation. You can continue an annotation over more than one line by pressing the Return key.

You can also move, cut, or copy an entire block of selected text by clicking it (the pointer changes to an arrow) and then dragging it.

See "Text in MacProject" on page 100 for more about text in MacProject. See *Macintosh,* the owner's guide, for more information on editing text in general.



Making a Chart a Larger Size

A MacProject Schedule Chart is preset to be 10 inches wide by 8 inches high. When your project gets larger than can fit in that space, you tell MacProject to give you more room.

You can also change the orientation of the chart to be vertical using the Page Setup command in the File menu.

1. Choose Set Chart Size from the Layout menu.

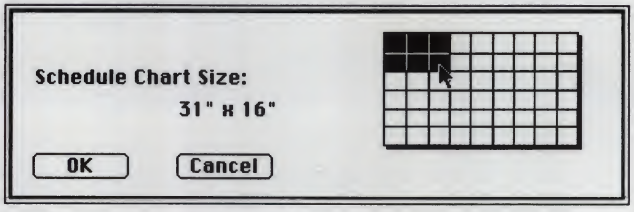
A dialog box appears, showing the current size of your Schedule Chart. (MacProject automatically sets the sizes of the other charts and tables.) Each black square represents one vertical or horizontal page. The numbers on the left show the exact height and width.

2. Change the size of the chart by clicking squares or dragging through them.

MacProject won't let you choose a size smaller than your chart will fit in.

Clicking OK confirms the change and returns you to the Schedule Chart.

To rearrange your chart on the larger page size, use the Show Entire Chart command in the Layout menu to move the chart on the pages or to move quickly to another part of the chart.



Viewing the Entire Chart

Usually, a project is too large for you to see the entire chart in the document window. You can use the scroll bars to view other parts of the chart, or you can shrink the chart to see the whole project using the Show Entire Chart command.

Choose Show Entire Chart from the Layout menu.

Your entire project appears in reduced size, in whatever chart form you're currently working with. If you're working with the Schedule Chart, you see the project positioned on the current chart size you've chosen, with page breaks shown as dotted lines; MacProject automatically determines the size of other charts or tables for you.

To view a different part of the chart

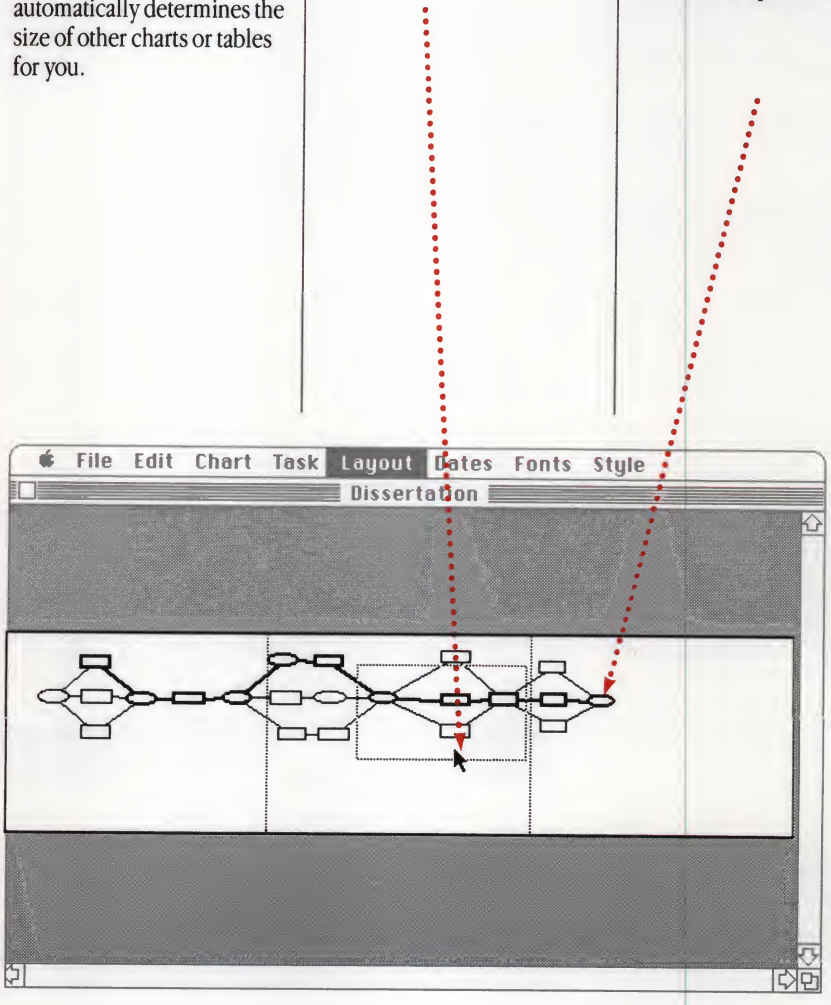
- Drag the dotted rectangle, which represents the window you were last viewing, to the part of the chart or table you want to view.
- Click in the title bar to return to the previous view.

To move the entire chart on the page or pages

- Drag anywhere outside the dotted rectangle.

You might do this to avoid a bad page break, for example. You can move the chart only when the project is in Schedule Chart form.

- Click in the title bar to return to the previous view.



Moving Information Between MacProject and Other Applications

You can use the Clipboard to move information—either entire documents or parts of documents—from one MacProject document to another, to the Scrapbook, or to other applications.

You can move or copy Schedule Charts (including all Task Info) to other MacProject documents. You can move or copy tables and other text to spreadsheets or any application that accepts text. And you can move or copy tables or pictures ("snapshots" of Schedule Charts or timelines) to MacWrite™, MacPaint™, or MacDraw™.

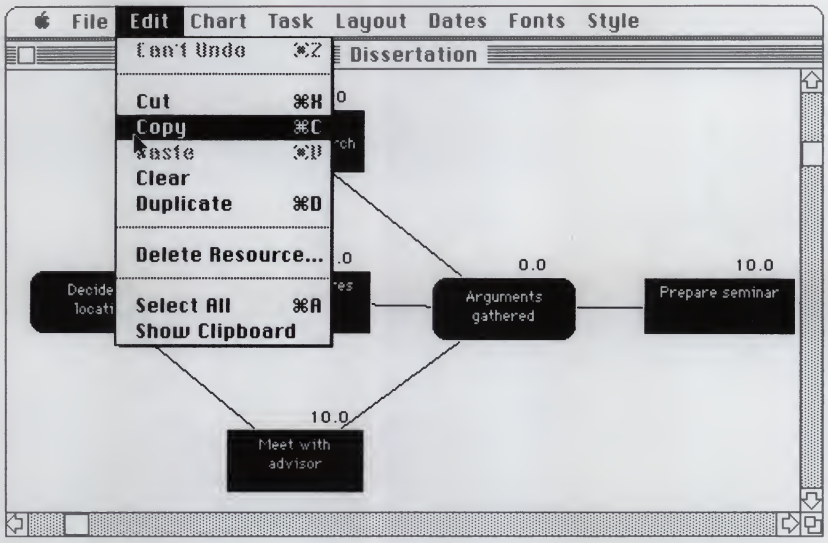
Of course, you can also cut and paste any text among MacProject documents, desk accessories that use text, and other applications.

When you copy or move MacProject tables, Tab characters are automatically embedded between columns, and Return characters are included at the end of each line. If you're copying or moving tables to a word processor, you can adjust Tab settings for the space you want between columns.

1. With the MacProject document open and displaying the chart or table you want to move or copy, select the information you want to move or copy.

You can choose Select All from the Edit menu to select the entire document.

2. Choose Cut or Copy from the Edit menu.



3. Choose Quit from the File menu.

4. Open the document you want to move or copy the information to.

5. Choose Paste from the Edit menu.

What you cut or copied is pasted into the receiving document.

See "Cutting and Pasting to Other Applications" on page 102.

Creating a Summary Chart

Sometimes you don't want to see all of a project's detail. You might want to make a point to your boss, or show corporate management how your division's doing.

1. Make a copy of the chart you want to summarize.

You can copy the document in the Finder by selecting it and choosing Duplicate from the File menu, or with the document open in MacProject by choosing Save As from the File menu and saving the document with a new name.

2. Set dates on all milestones you want included in the summary.

It's important to set all these dates so MacProject won't recalculate them when you remove part of the chart. See "Setting Dates" on page 54.

3. Select the detailed parts of the project you don't want to show.

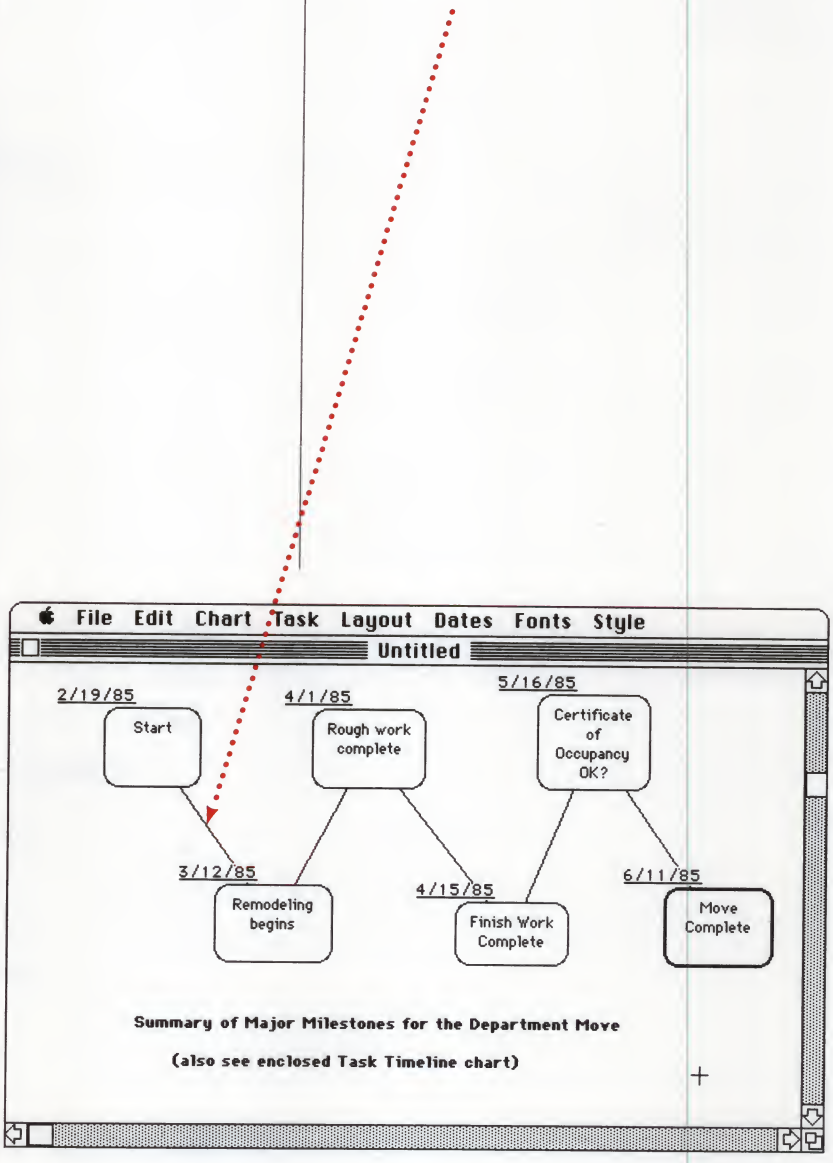
See "Selecting" on page 42.

4. Choose Cut or Clear from the Edit menu.

All selected tasks are removed, as are dependency lines.

5. Reconnect all milestones.

See "Connecting Dependent Tasks" on page 47.



Setting Up a Template

You might find that many of your projects have a similar structure. To save having to recreate the structure each time you start a new project, you can set up a template.

To create a template

- Create a copy of the MacProject document you want to use as a model for other projects.

You can do this in the Finder by selecting the icon that represents the document and choosing Duplicate from the File menu, or with the document open by choosing Save As from the File menu.

- Give the copy a name that will suggest it's a template—Ad Campaign Forms, for example.
- Delete any information that's likely to change from project to project.

To remove task or milestone names, select each one in turn and press the Backspace key. To remove task information, edit the Task Info for each task. See "Adding or Changing Task Info: Duration and Resources" on page 48.

- Choose Save from the File menu.

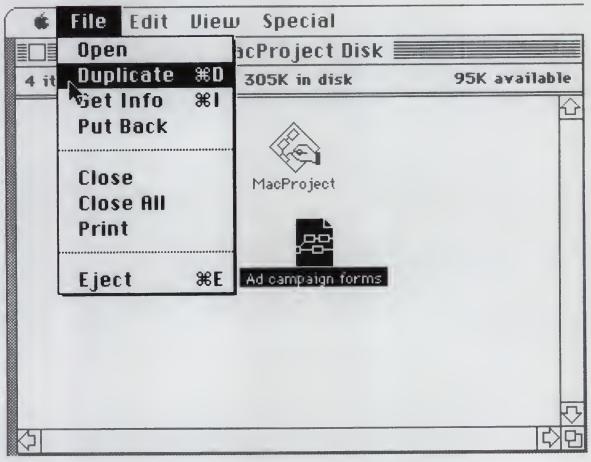
This saves your template.

To use the template

- Open it as you would open any document.
- The first time you save your new project, choose Save As rather than Save from the File menu.
- Type a new name for this save.

This prevents your saving any changes to the template.

You can also duplicate the template in the Finder and open the duplicate copy to prevent saving changes to the template.



Summary of Handling MacProject Documents

To start a new document

From the Finder:

- Open the Project icon.

From MacProject:

- Choose Close from the File menu (or click the document's close box).
- Choose New from the File menu.

To work on an existing document

From the Finder:

- Open the icon that represents it.

From MacProject:

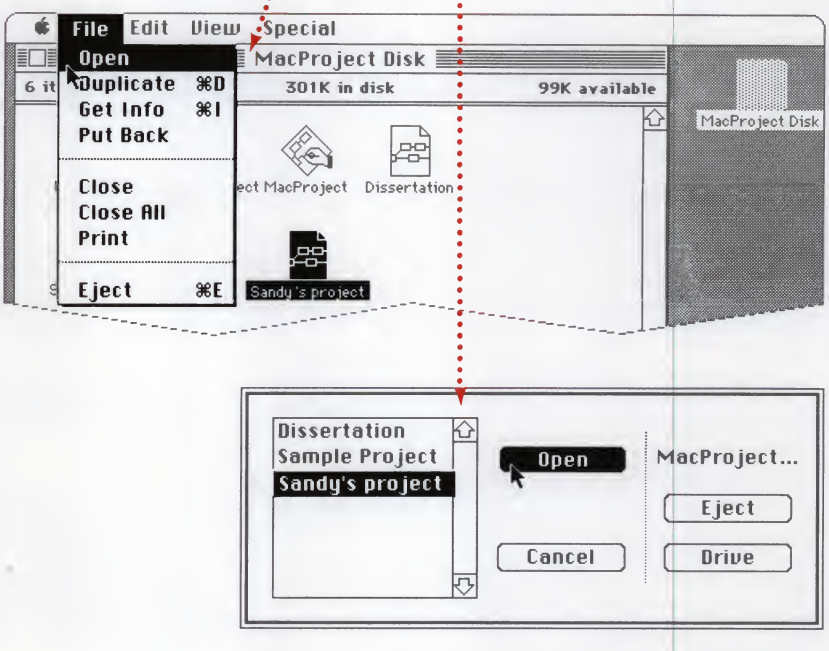
- Choose Close from the File menu (or click the document's close box).
- Choose Open from the File menu.
- Click the name of the document you want to work on.
- Click the Open button.

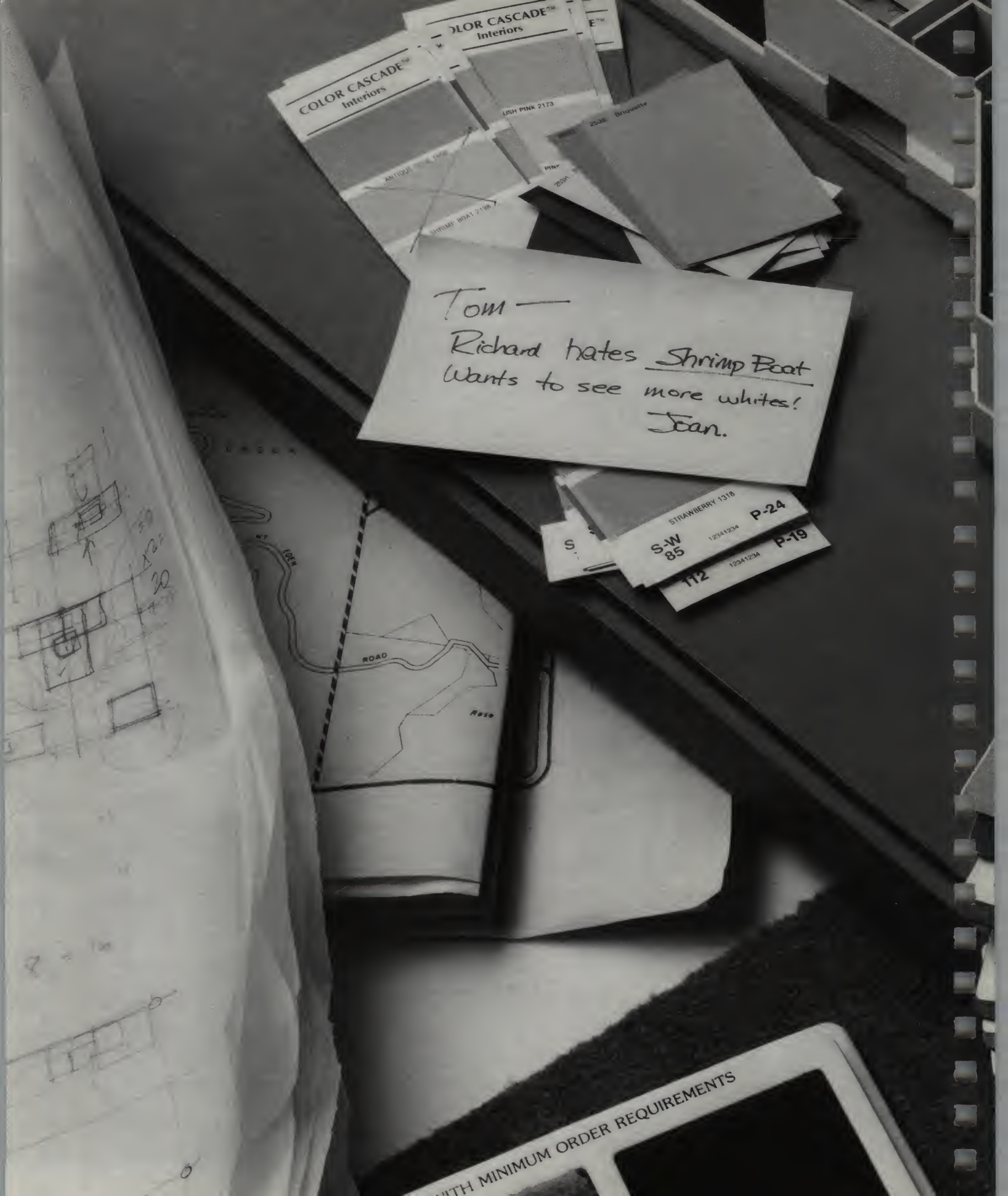
You can also double-click the name to open it.

To save changes to a document

- Choose Save from the File menu.
- Type a name for the document the first time you save it, and then click the Save button.

After you've named a document, choosing Save will always save it on the same disk with the same name. To save a document with a different name or on a different disk, choose Save As. See "The File Menu" on page 104 for more about saving documents.




COLOR CASCADE™
Interiors
COLOR CASCADE™
Interiors
Tom —
Richard hates Shrimp Boat
Wants to see more whites!
Joan.
STRAWBERRY 1318
S-W 85
12341234
P-24
112
12341234
P-19
ROAD
WITH MINIMUM ORDER REQUIREMENTS



Chapter 3

Managing Projects

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89 Keeping the Cash Flow Even
90 Keeping Track of Resources
91 Showing More Detail

Introduction

This chapter shows you how to get the information you need to make good decisions. It'll help to answer questions about your projects—questions like:

- ☐ What will happen to the schedule if Engineering slips?
- ☐ How will it affect our budget if equipment costs go up 19%?
- ☐ What if we work weekends for a while?
- ☐ Am I using resources efficiently?
- ☐ Is there a way to get the project done ahead of schedule or for less money?

You don't have to read this chapter in any particular order; each topic is independent of the others.

How Can I Finish the Project Sooner?

To trim a project's schedule, find critical tasks (always outlined in bold) that can be eliminated or done in parallel or finished in less time than they're scheduled for. As you make these changes, the critical path will probably change, and you can turn your attention to tasks on the new critical path. Or consider working longer hours.

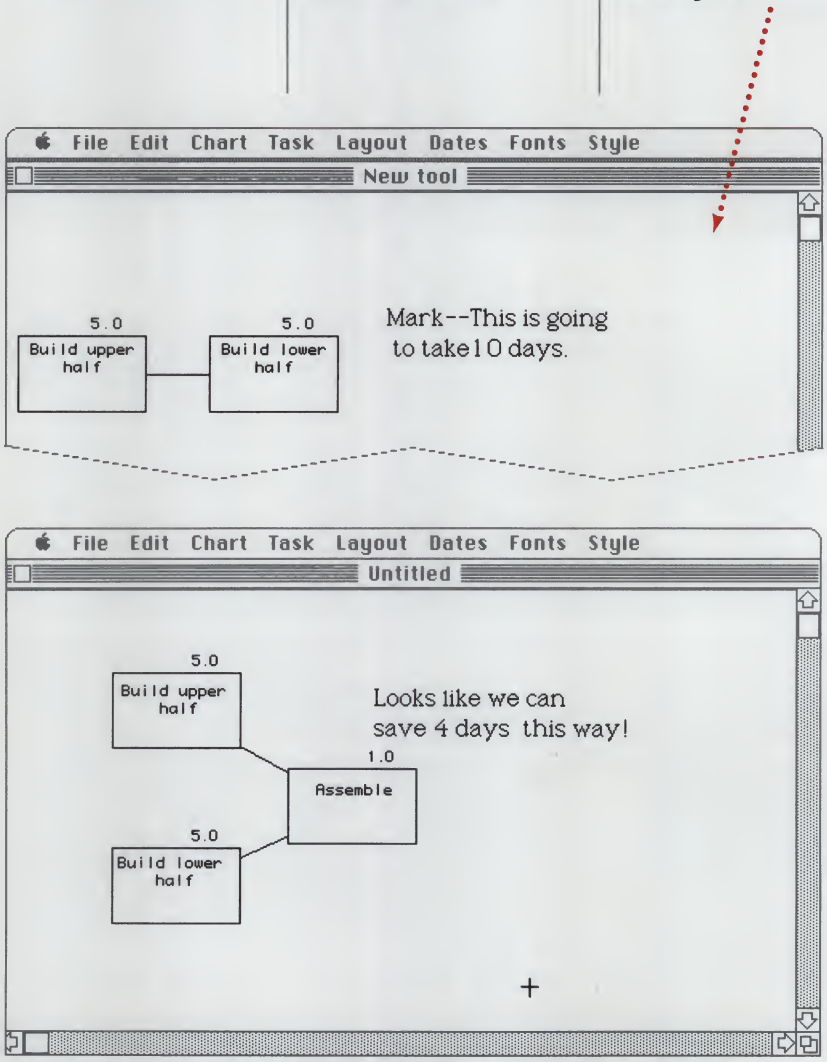
Use one or more of the methods on these pages.

Eliminate a task that's on the critical path.

Make sure every task that's on the critical path is necessary for this project. For example, you may have scheduled three full drafts and review cycles for a book you're writing. You might be able to eliminate one draft.

Replan dependent tasks to be done in parallel.

For example, if you've planned to build the upper half of a piece of machinery on top of the lower half, consider whether you might be able to build both halves simultaneously and then join them together.



Overlap sequential jobs.

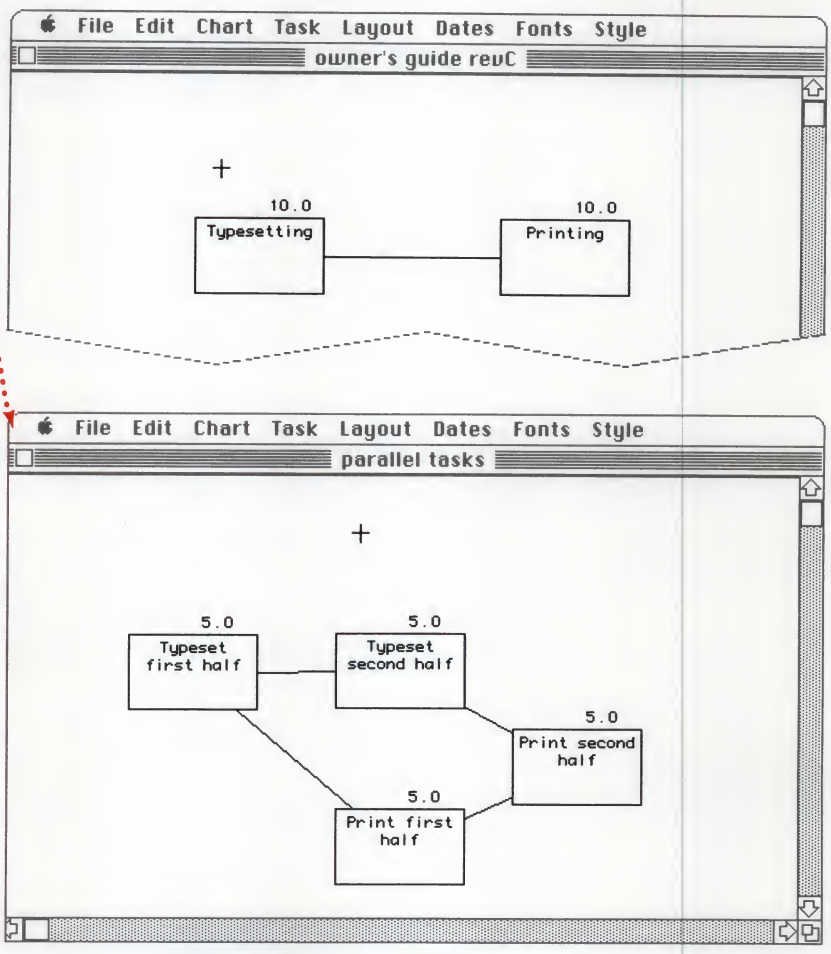
Often a series of tasks can be broken down into subtasks, some of which can be done in parallel. For example, say it takes 10 days to phototypeset some copy, and then 10 days to print it, adding up to a total of 20 days. By splitting the manuscript into two parts, you can do some of the work in parallel, saving 5 days.

Decrease the duration of tasks on the critical path.

Perhaps a task's duration can be decreased by applying more resources. See "Which Tasks Should I Shorten?" on page 80.

Increase the number of work days or work hours.

Almost any project will get done sooner if you add time to the working day or week. This is often an expensive solution, however. See "Setting the Calendar" on page 50.



Which Tasks Should I Shorten?

The tasks on the critical path are the most important ones to shorten, since they affect the completion date of the entire project. Here are some suggestions to help you find tasks to shorten.

Shorten the tasks that occur early in the project.

This gives you more flexibility later in the project, when you'll probably need it.

Shorten the longest tasks.

Often you can squeeze a certain percentage out of any task's duration. Therefore, the greater the duration a task has, the more time you can remove from it.

Shorten the easiest tasks.

Look for tasks that have been done successfully before. Find places where there are fewer unknowns or where you're sure of the resources' capability or dependability.

Shorten the tasks for which you have more available resources.

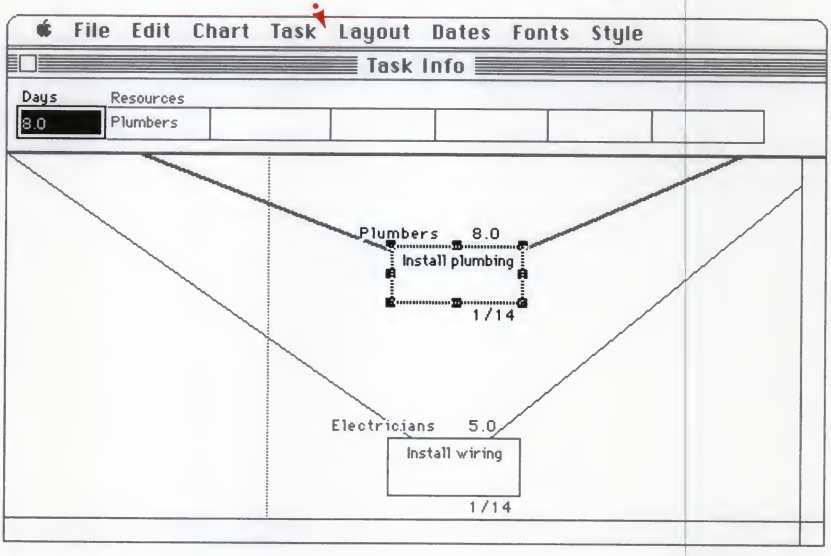
For example, you may know that you can easily hire five extra plumbers, so you may want to shorten the "Install plumbing" task. On the other hand, it's harder to find electricians, so you can't shorten the "Install wiring" task as easily.

Shorten the tasks that cost the least extra money to speed up.

Perhaps renting or buying a faster piece of equipment is less expensive than having people work extra hours with the slow equipment.

Shorten the tasks that your organization controls.

It's usually easier to control work done within your organization than work you contract out. However, as with any good rule, there are exceptions. Sometimes you can use "clout" or pay a premium to get the work done faster by a contractor.



What If I Lose or Add Staff or Equipment?

If someone quits, or you find out that equipment you need won't be available after all, you can juggle your project to spread the work out among other resources. If you add resources to your project, you can see where existing resources may be overloaded, and then reassign tasks to your new resource.

To see how tasks are divided among resources

- Choose Resource Timeline from the Chart menu.

This lets you see what tasks are assigned to all resources—both people and equipment. You can see what people or equipment have free time and what ones are overloaded. If you've lost a resource, you can see that resource's responsibilities and determine who can take them over.

To add or remove a resource from a task

- Select a task whose resource you want to change.
- Choose Show Task Info from the Task menu.
- Edit the Resource blank or blanks.

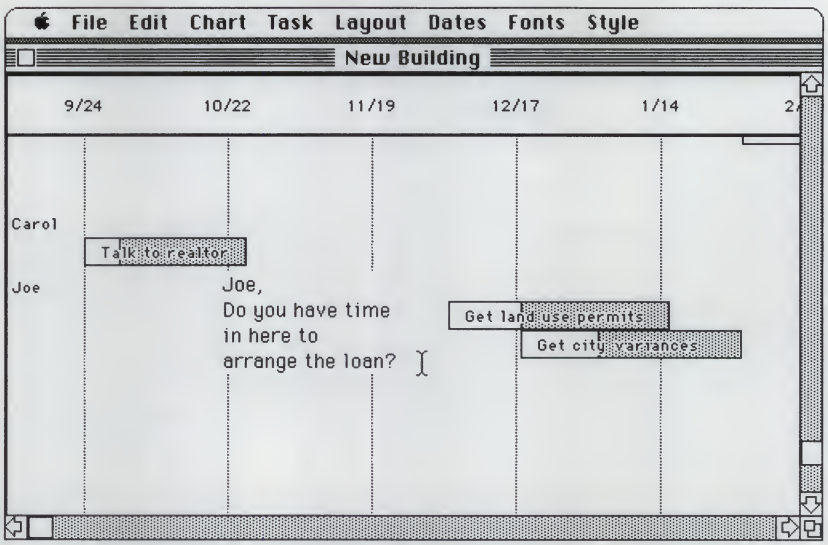
See "Adding or Changing Task Info: Duration and Resources" on page 48.

- Do the same for each task whose resources you want to change.

Adding a resource to a task adds it to the entire project. Removing a resource from a task won't remove it from the project, even if that was the only task currently using the resource.

To remove a resource from the entire project

- Choose Delete Resource from the Edit menu.
- Type the name of the resource you want to remove from the entire project.



What If a Task Finishes Late or Ahead of Schedule?

If a task finishes late because it took longer than you expected, increase the task's duration. See "Adding or Changing Task Info: Duration and Resources" on page 48. Note that this increases the time each resource spent on the task, so it may increase the resource costs for this task.

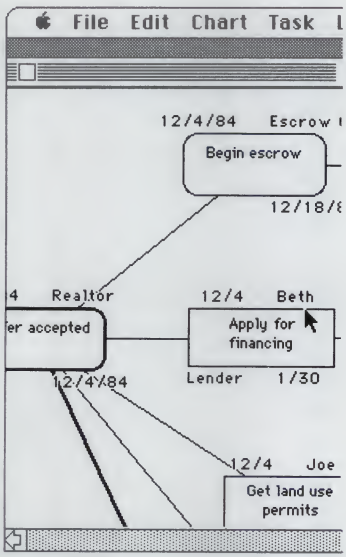
If the task finished late because it started late, set the Earliest Start date for the task to the date on which it actually started. See "Setting Dates" on page 54.

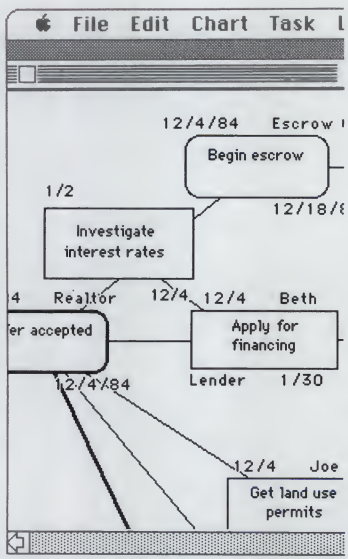
If a task finishes ahead of schedule, change the task's duration to the amount of time the task actually took. See "Adding or Changing Task Info: Duration and Resources" on page 48.

What If I Expand a Project?

Sometimes what you thought was a project's final goal turns out not to be. Maybe the ad campaign is going so well you decide to add another phase. Or maybe you add new tasks halfway through the project. MacProject lets you change the chart anytime without redrawing the original.

To expand your project, add the new tasks and milestones to the right of any tasks or milestones they depend on. You can add new tasks anywhere in the chart. If you need more room in the middle of a project, drag an existing task to the right beyond one of its dependent tasks. MacProject will automatically move connected tasks with it, leaving you more white space to add new tasks in. (Make the chart size larger if you need to. See "Making a Chart a Larger Size" on page 66 and "Viewing the Entire Chart" on page 67.)



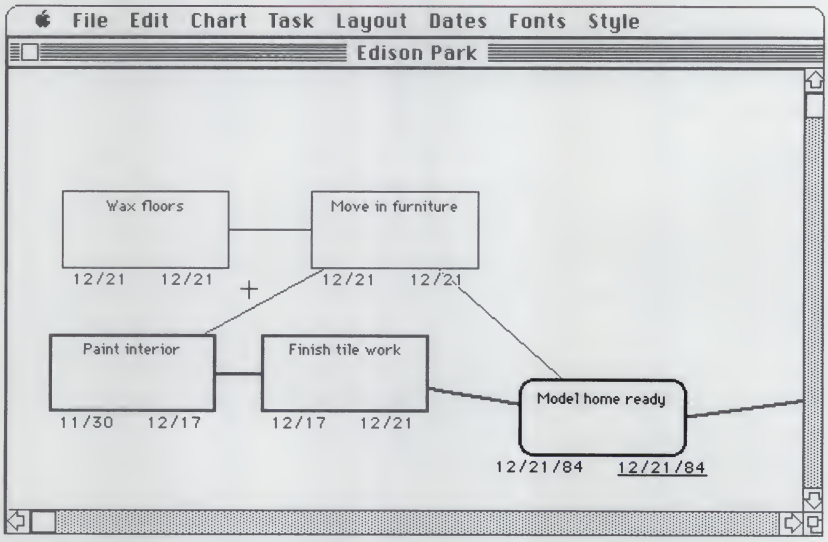


What If I Change Working Hours or Days?

You can often make a dramatic difference in a schedule by working weekends for a while or adding an overtime shift. See "Setting the Calendar" on page 50. It's up to you to talk your team into the new schedule, but you can use MacProject to show how the change will help you meet a common goal—getting the project out the door on time. If you add resources to a task, the task's duration will decrease. (If it doesn't, MacProject probably can't help you.) Be sure to adjust the durations of tasks to which you've added resources.

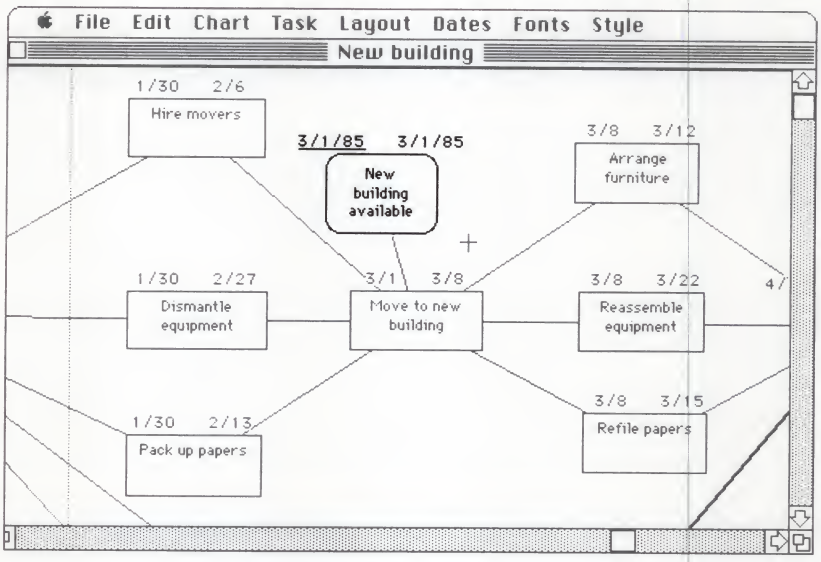
What If There's a Deadline in the Middle of a Project?

Sometimes someone outside your project requires something from you by a deadline. For example, if you were building a housing development, the marketing department might need a model home by a certain date. You could create a milestone anywhere in the project for having the model ready, and set a fixed date for it. MacProject will then show you the latest possible starting date for all tasks that precede your milestone. See "Setting Dates" on page 54.



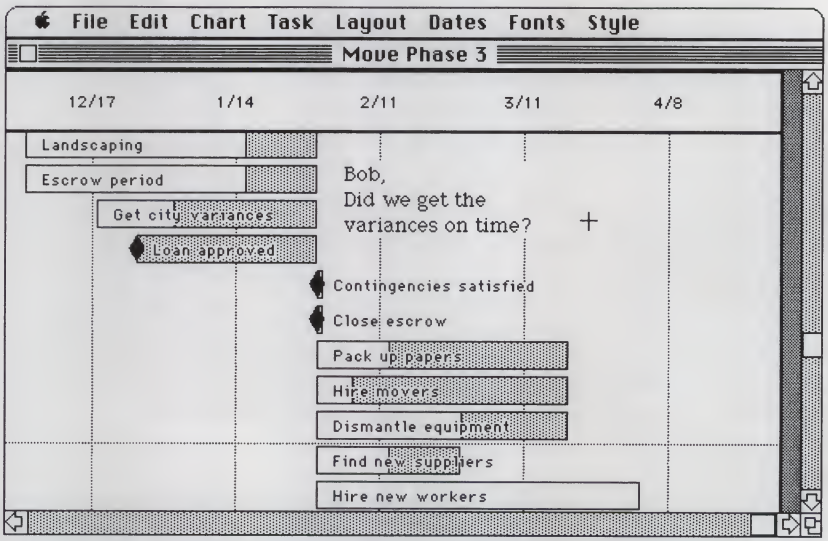
What If I Require Something from Outside the Project?

Sometimes your project depends on outside factors as well as work done by your team. Even though you can't always control these factors, you can make sure your schedule is affected as little as possible by keeping close track of what your project needs. Create milestone boxes to identify your project's outside requirements and perhaps set fixed dates for those milestones. For example, you might have a milestone titled "New building available". Then it will be easier to see how your schedule would be affected if the building isn't available on that date. See "Setting Dates" on page 54.



Monitoring a Project's Progress

How do you know if you're still on schedule? Look at the Task or Resource Timeline chart. Have you finished tasks that are scheduled to be finished by now? Update the schedule by changing tasks' durations and fixed dates. Then look at the new Earliest Finish date on the project's final milestone. Consider ways you might be able to make up the time. See "How Can I Finish the Project Sooner?" on page 78.



What If Costs Change?

If a fixed cost or income changes, edit the cost or income blank in the Task Cost Entry table.

If a resource's cost per day (or any other increment you set the duration scale to) changes, edit the Cost blank in the Resource Cost Entry table. See "Costs and Income" on page 56.

Keeping the Cash Flow Even

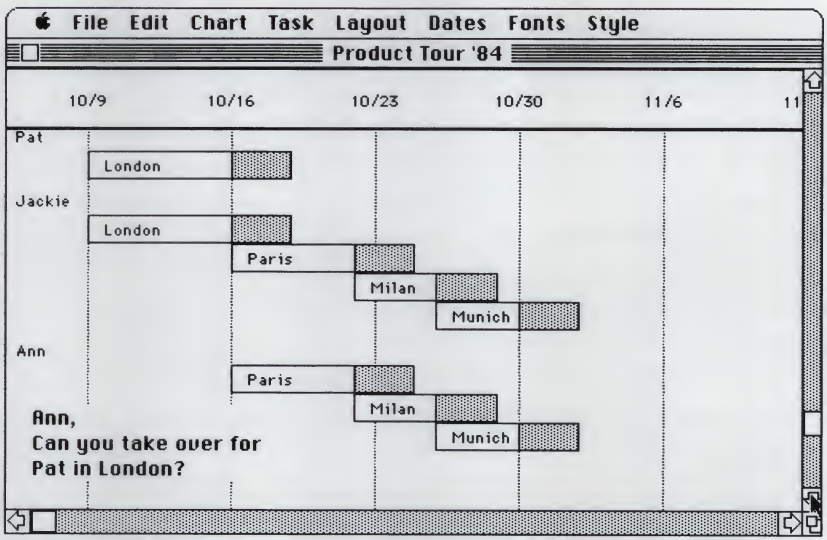
Look at the Cash Flow Table. Fixed costs are charged on a task's Earliest Start date. Change these dates to alter the cash flow. See "Setting Dates" on page 54.

Keeping Track of Resources

The Resource Timeline helps you make sure work is distributed as efficiently as possible. You can see immediately if you've scheduled someone to do too much or not enough, or if you can save time on the project by redistributing tasks among the team.

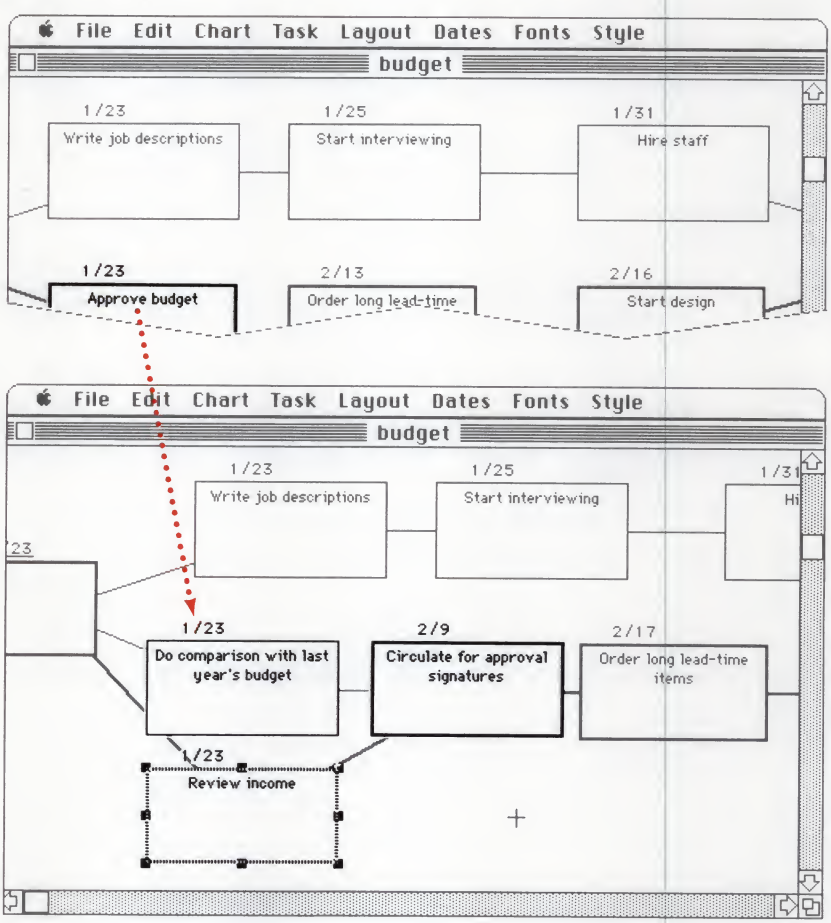
You can also use the Resource Timeline in a slightly different way, just for resource tracking. You might do this to track your sales force, or schedule representatives at trade shows, for example. To do this, draw task boxes to represent the people you're tracking, and type in the territory they're visiting (or the events or meetings they're attending) as resources. Or make various cities the tasks and your sales force the resources. When you do this, the Resource Timeline gives you a good overview of who's where, and when.

To add or remove resources from a task or an entire project, see "What If I Lose or Add Staff or Equipment?" on page 82.



Showing More Detail

Often a task that seemed simple and straightforward when you laid a project out is actually made up of several tasks itself. You might want to break the original task into several tasks to show a greater level of detail. For example, you might divide "Approve budget" into "Do comparison with last year's budget," "Review income," and "Circulate for approval signatures." Delete the original task and draw the new ones, including any dependencies. Divide the original duration and resources among the new tasks. See "Adding or Changing Task Info: Duration and Resources" on page 48, "Adding New Tasks or Milestones" on page 58, and "Removing Task or Milestone Boxes or Dependency Lines" on page 62.



Royce Walthrop

for

Hillsdale City Council

Vote June 5

Sarah—
We need 500 of these in Red, White, & Blue.
Dad

Vote

Royce Walthrop

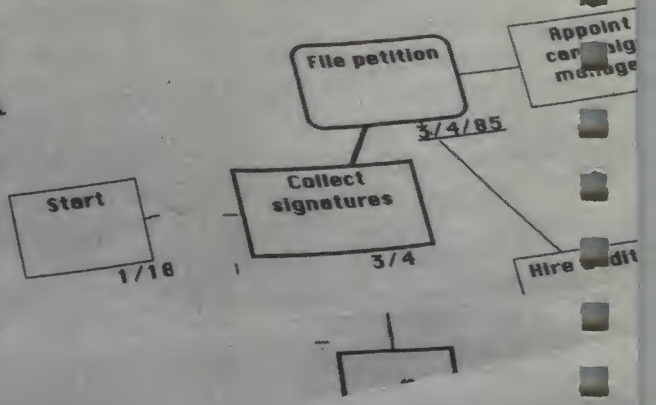
for [illegible] Council

Hillsdale City [illegible]

- Responsible member of community
- Understands the challenges Hillsdale [illegible]
- Mechanical Engineer for local firm
- Children have attended Hillsdale schools
- [illegible] ecological impact issues

20 ye

Hillsdale City Council Election



Hillsdale City Council Election

The Hillsdale Women's Club
Hillsdale, O

Mr. Royce Walthrop
217 Crocker Lane
Hillsdale, OH 44704

Dear Mr. Walthrop:

The Hillsdale Women's Club would like to invite you to speak at our meeting, which will be held at the York Avenue Restaurant on P.M.

The Woman's Club is proud of our history of "doing our homework" candidates for elected offices in our community. To help us understanding your position on a variety of local issues, to address specifically the following questions:

➡ What are the highest priority issues for the next four years?

➡ What is your stance on the proposed

➡ What use would you suggest for Hill buildings?

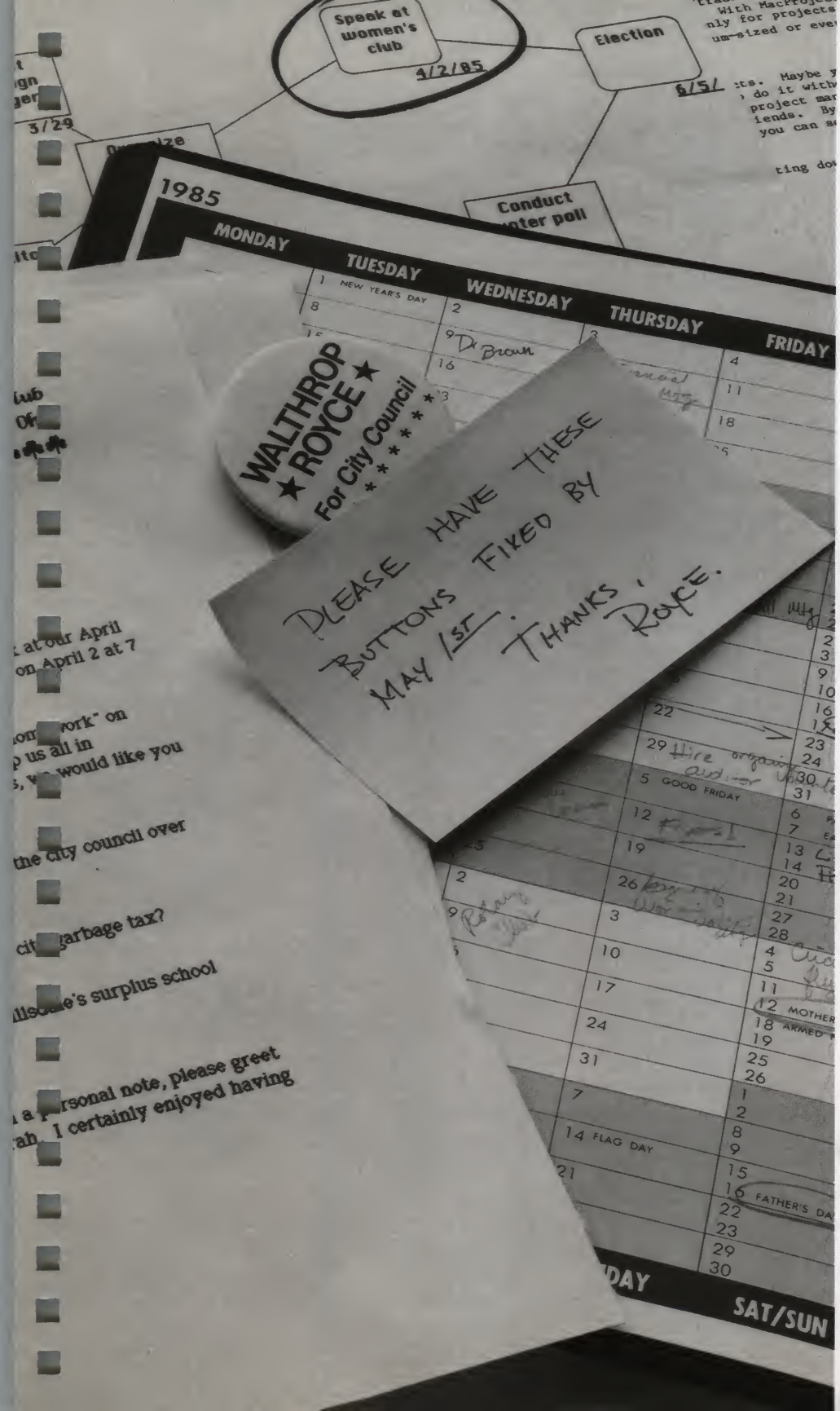
We look forward to hearing you speak. On your family for me. A special hello to her in my Biology class last year.

Most sincerely,

Gracie Lemme

Chapter 4

Reference



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Introduction

This chapter introduces MacProject's every detail. It starts with a description of the elements that make up a project. It also includes descriptions of the commands in menus, shortcuts, and MacProject specifications.

Tasks

Tasks are work that needs to be done for the project to be completed. Every project is made up of a group of related tasks.

Tasks are represented in the Schedule Chart by rectangles. Each task has its own task information:

- a **name** that describes the work
- how long the task will take—its **duration**

 Duration is one of the elements MacProject uses (along with dependencies and dates you set) to calculate dates in your schedule.

- as many as six **resources**; usually who's responsible for the task

 A task can have up to six resources—people or departments responsible for the task. A resource can also be a piece of equipment or anything necessary to complete the task.

 You can assign a resource to more than one task during the same time period; the Resource Timeline shows you how the task or tasks for each resource are distributed over the timeline you set.

- how much it **costs**—in both fixed, one-time costs and in ongoing unit costs for resources—and how much **income** it generates

 MacProject can keep track of the costs and income of a project. The Cash Flow Table shows you where the money's going, period by period. You set the length of the period by choosing Timeline Scale from the Dates menu.

 Task costs are assigned once during the task or milestone; resource costs accrue for the duration of the task or tasks that resource is assigned to. You enter fixed costs for a task in the Task Cost Entry table; you enter ongoing resource costs in the Resource Cost Entry table. Resource costs can be shared among tasks that use the resource on the same day or accrued for more than one task on a single day.

 You can keep track of income as well. You enter fixed income for a task in the Task Cost Entry table.

Milestones

Milestones mark progress—the completion of a number of related tasks or the start or completion of the entire project. A milestone is a visual cue marking a significant place in the project, and doesn't usually have time or resources tied to it. It often has costs or income, however.

Milestones are represented in the Schedule Chart by rounded rectangles and in the Task and Resource Timelines as diamonds. When dates are displayed, milestones include the year. (To avoid crowding, tasks do not.)

Dependencies

When one task (or milestone) can't get started until another is completed, you show this dependency in the Schedule Chart by connecting the tasks with a line. The dependent task must always be to the right of the task it depends on, and you must draw the connecting line from left to right—from the task that must be done first to the one that depends on it. MacProject never forgets this dependency (unless you tell it to by deleting the connecting line), and figures it in whenever it calculates a schedule with those tasks in it.

Dependencies are represented in the Schedule Chart by lines connecting tasks to dependent tasks. They are drawn from left to right—what must be completed first to what depends on that task's completion.

Dates

You tell MacProject when you can begin and how long each task will take, and MacProject tells you when the project will be done. Or you tell MacProject when a project needs to be done, and MacProject tells you when you need to get started. Sometimes you do both!

You can also set a date for any task or milestone within the project to override the date MacProject calculates. So if you know, for instance, that a task can't start before a certain date because the person who's responsible for it isn't available until then, you set that date. MacProject takes your word for it, and the date you set overrides any date it calculates.

In general, it's a good idea to let MacProject calculate dates whenever possible. Every time you set a date, you're giving MacProject a constraint. That constraint may not be a real one, and yet it can affect other calculations and give you misleading or, worse, inaccurate schedules. Set dates only when those dates are real.

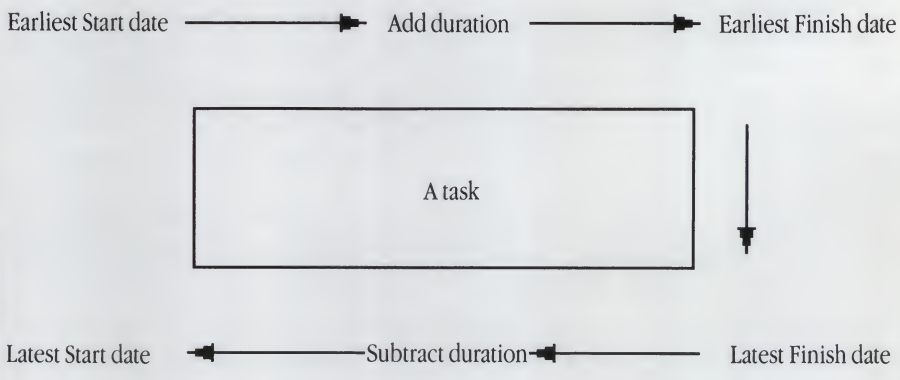
Dates and other task information can be displayed around each task and milestone box by choosing Show Dates from the Dates menu.

- The Earliest Start date is the earliest a task can get started, considering the durations of all tasks it depends on and any start dates you set.
- The Earliest Finish date is the earliest a task can be completed, considering the durations of all tasks it depends on, its own duration, and any start dates you set.
- The Latest Start date is the latest a task can begin, given its duration and the durations of its dependent tasks, to meet a deadline.
- The Latest Finish date is the latest a task can finish, given the durations of its dependent tasks, to meet a deadline.

The difference between the start and finish dates of a task is duration; the difference between early and late dates is slack time. Slack time is the amount of time the task can be delayed without affecting the entire project's schedule.

Calculation

MacProject first calculates earliest dates and the critical path based on the durations of all tasks, the project's starting date, and any other Earliest Start dates you set. Then it uses the Earliest Finish date of the last task as the Latest Finish date for that same task. It then calculates backward, considering all factors again (this time paying attention to any Latest Finish dates you set), assigning different late dates where possible.



Whenever you change any information in any chart or table, MacProject recalculates the schedule. The new schedule is displayed when you click the Set button if you're setting dates, or when you click in the document window or press the Enter key if you're editing Task Info.

Slack Time

When a task isn't on the critical path—in other words, it can slip without affecting the overall schedule—it has slack time. Slack time is any difference between earliest possible and latest possible dates. (When there is no difference between these two dates, the task is on the critical path.)

If a noncritical task actually starts after the Latest Start date, and you set the Earliest Start date to reflect this, the task will become a critical task, and the critical path will shift to include it.

Slack time is represented in the Schedule Chart by a difference between earliest and latest dates. It's represented in the Resource and Task Timelines by gray. Although slack time is always shown at the end of the task, it can occur at the beginning or the end of a task.

Critical Path

MacProject shows you the most "critical" tasks, tasks whose delay would cause a schedule to slip. Critical tasks have the least amount of slack time. In addition, any task with a negative amount of slack time is highlighted by having its vertical sides in bold. This helps you know where to put your attention in order to keep the project on schedule.

The critical path is represented in the Schedule Chart by a bold outline.

Text in MacProject

In most ways, text in MacProject is just like text in other Macintosh applications. You enter and edit it in the usual way, and you choose fonts, font sizes, and styles from menus that contain the currently available choices. There are, however, a couple of differences in the way text works in MacProject from the way it works in other applications.

- Each annotation can have a single font, font size, and style. Choices you make within an annotation affect that entire annotation. An annotation begins when you click on any white space other than inside a task or milestone box, and ends when you click somewhere else to select a new insertion point. You can have more than one annotation on a single line (by clicking on the same line again), or use the Return key to continue one annotation over several lines.
- All task names and dates displayed around task boxes also share a common text format.

There's one exception: Style choices you make for task text affect only task names, and not dates. This is because MacProject uses style variations to give specific meaning to dates. An underlined date is one you set; a bold date is one that can't be met.

All font, style, and font size choices apply only to the chart form you're currently working with.

The Fonts menu always contains the fonts that are available when you open MacProject from this disk. To use other fonts, or to remove fonts to have more space available on the disk, use the Font Mover. See *Macintosh,* the owner's guide.

One more thing: When an entire block of text in an annotation is selected (either in the normal way or by Shift-dragging), you can drag this text to move it the same way you move any other graphic object.

Selecting in MacProject

Besides the usual text selection, there are two kinds of selection of objects in MacProject: single task or milestone selection, and all other selection. When you select a single task or milestone, knobs appear around the box. You can move or copy the box, change its size, or add task information about the selected task.

With any other selection you can move, cut, or copy the object or group of objects, but you can't change their size or add task information about them. This kind of selection is shown by inverting what was black to white (and vice versa) or, in the case of lines, by making them dim.

Text in MacProject (other than Task Info displayed around boxes) can be selected in the usual way.

Cutting and Pasting to Other Applications

You can move information from one MacProject document to another, to and from the Scrapbook desk accessory, or to another application.

The Macintosh stores information on the Clipboard in one of two basic representations—pictures or text. When you leave MacProject—either by choosing Quit or by using a desk accessory—charts and tables you've cut or copied take these forms:

Schedule Chart	picture
Resource Timeline	picture
Task Timeline	picture
Task Cost Entry	text
Resource Cost Entry	text
Cash Flow Table	text
Project Table	text

Any receiving application deals with information pasted from MacProject as it deals with any picture or text pasted into it. Some applications can't accept pictures.

You can paste a Schedule Chart into another MacProject Schedule Chart. All Task Info and dates are retained. Besides text, this is the only information MacProject can receive.

Tables stored as text include internal Tab and Return characters. If you paste a table into a spreadsheet, it will fall naturally into the spreadsheet's tabular format. If you paste a table into a word processor such as MacWrite, you'll need to set a Tab marker for each column of the table.

If you paste into MacPaint, you're limited to one screenful per cut and paste. If you paste into MacWrite, you're limited in width to one vertical page width. You can paste an entire document into MacDraw.

You can also cut and paste any text in the usual way among MacProject, the Scrapbook or other desk accessories that accept text, and other applications.

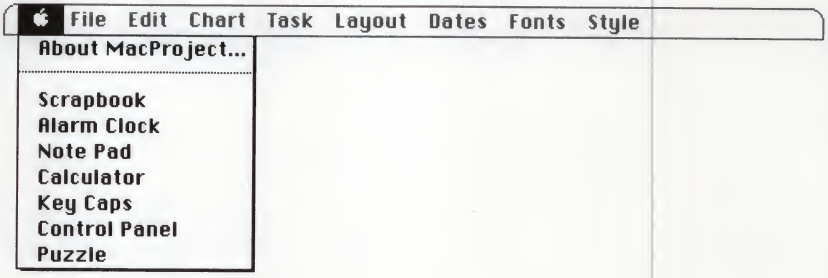
In addition, you can transfer entire MacProject documents to other Macintoshes using MacTerminal™.

MacProject Menus

MacProject presents all the commands it understands in menus you pull down from the menu bar. When a command can't be carried out, it appears dimmed in the menu. Once you're experienced with MacProject, you can use keyboard equivalents for many of the menu's commands; keyboard equivalents are listed in the menus to the right of each command that has one.

Any command that requires additional information is followed by ellipses. Choosing one of these commands causes a dialog box to appear, with places to enter information or check options. Once you've entered the information, you confirm the command by clicking the OK or Set button or pressing the Return or Enter key. Clicking the Cancel button cancels the command.

The Apple Menu



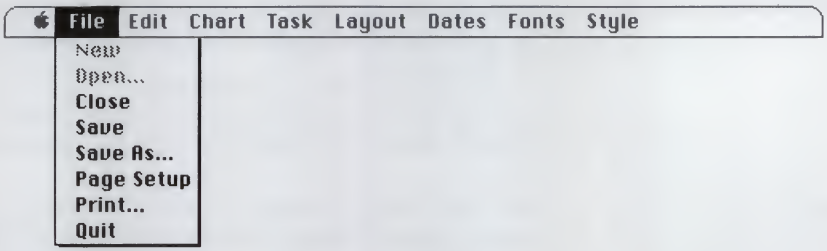
About MacProject...
Shows the version number and the authors of MacProject—Debra Willrett and Stephen D. Young—as well as a checklist of steps to complete in setting up a new project.

This menu also includes the desk accessories available to you whenever you use Macintosh, no matter what application you're working with. See *Macintosh,* the owner's guide, for information about the desk accessories.

Some accessories especially useful with MacProject are:

- the Scrapbook, where you can keep frequently used chart templates or passages of text
- the Calculator, to do quick calculations and paste the results into a task duration or costs table

The File Menu



The File menu contains commands to carry out on entire documents while using MacProject. These commands are the same as the File menu commands in most Macintosh applications. For major document organization tasks—removing documents, renaming them, or organizing them in folders, for example—use the Finder. See *Macintosh,* the owner's guide, for how to use the Finder to manage documents.

New
Opens a new, untitled document, in the Schedule Chart form.

You can have just one MacProject document open at a time; when a document is open, you need to close it (by choosing Close or clicking the close box) before you choose New.

Open...
Presents a dialog box with a list of existing MacProject documents on the current disk. (The current disk's name is shown in the top right corner.) Clicking a document name to select it and then clicking the Open button, or just double-clicking the document name, opens the document. It appears in whatever chart or table it was the last time you saved the document.

Clicking the Eject button ejects the disk you're currently working with, so you can insert another disk and look at its contents.

Clicking the Drive button makes any other disk inserted in an additional disk drive the current disk and shows you a list of its contents.

You can have just one MacProject document open at a time; when a document is open, you need to close it (by choosing Close or clicking the close box) before you choose Open to open another.

Close
Closes the active window (the document you're working on, the Task Info window, or any open desk accessories) without quitting the application. If you've made changes to the document since the last time you saved it, you'll be asked whether you want to save your most recent changes.

Save

Saves the current version of the document on the disk you're working with, replacing any existing version of the document that has the same name.

The first time you save an untitled document, MacProject asks you to name the document. After that, the document is always saved with the same name, on the same disk. If you want to save a document with a different name, or if you want to save it on a different disk, choose the Save As command.

Save As...

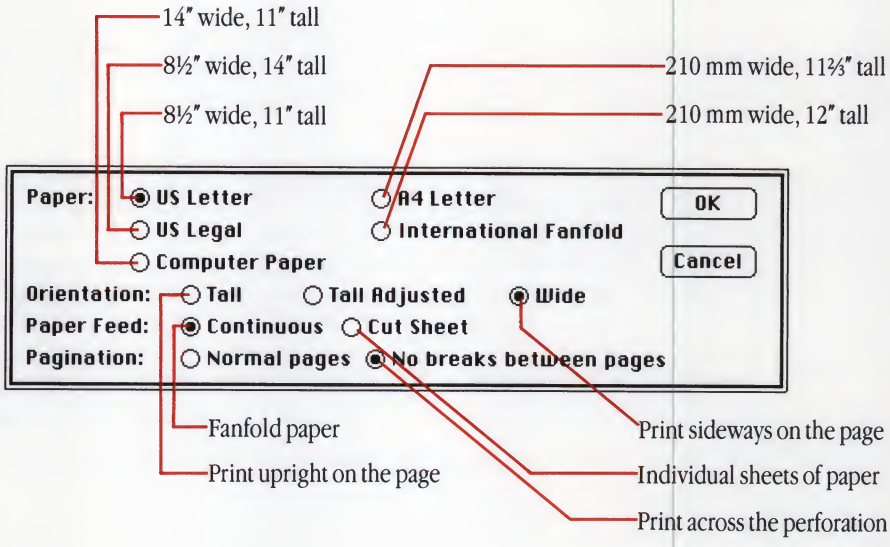
Lets you save a document to a disk other than the one you're working with, or save a document with a different name, either on the same or a different disk.

When you choose Save As, a dialog box appears. You can change the name of the document by typing to replace any existing name, and you can eject the current disk so you can insert another, or switch to a disk inserted in another drive if you have an additional drive attached.

Clicking Save saves the current document with the name that appears in the blank, on the current disk, whose name appears in the top right corner.

Page Setup

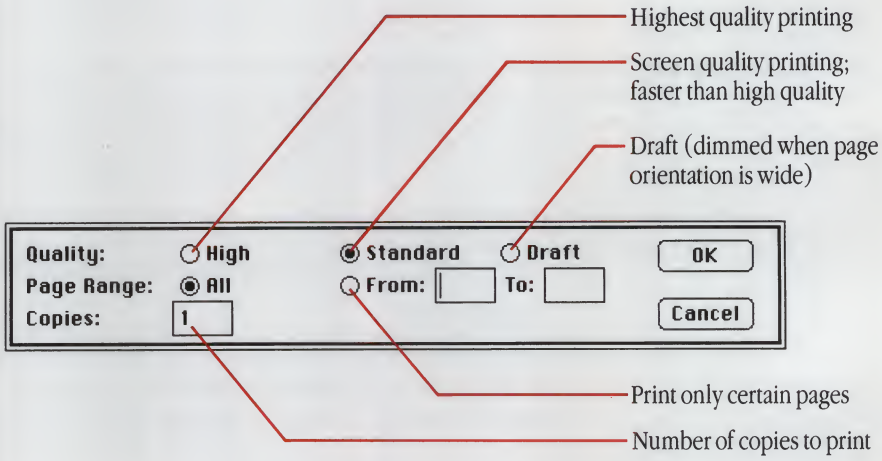
Lets you set up the orientation of your document and the page size. Page Setup affects how your document is printed, including where page breaks occur. Page breaks are represented as dotted lines in the charts and tables.



The Tall Adjusted setting is used with some applications to get the highest possible fidelity for graphics, at a slight expense to the the text fidelity. With MacProject use the Tall setting to maintain high-quality text; the difference in graphic fidelity won't be noticeable.

If you change the page orientation or paper size, MacProject automatically adds any necessary pages to make your chart fit in the new orientation.

Print...
Presents a dialog box for choosing printing options:



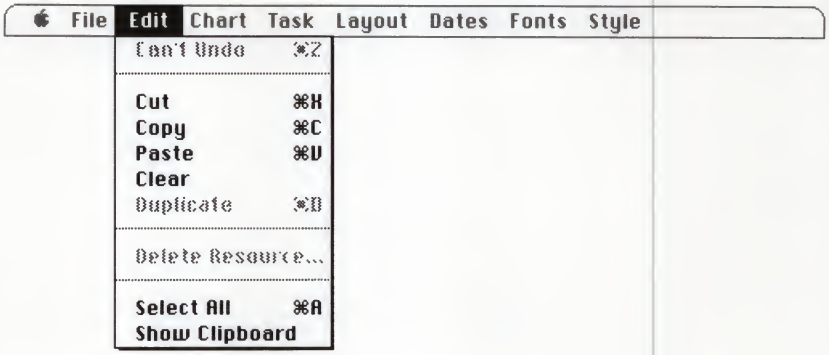
You can print any of the charts or tables of a MacProject document. Whatever chart you're currently working with will be printed. MacProject first stores a "printed" copy on the disk, and then prints from that copy.

When your project is on more than one page (as specified in the Set Chart Size command in the Layout menu), it's printed in the appropriate sequence. If you've chosen the Tall or Tall Adjusted orientation in the Page Setup dialog box, MacProject prints the pages in top-to-bottom, left-to-right succession; if you've chosen Wide orientation, it prints in left-to-right, top-to-bottom succession.

MacProject can't print your document unless there's a printing resource on the MacProject disk. (The printing resource is usually a file in the System folder with the same name as the printer you're using, such as Imagewriter.)

Quit
Closes the document and quits the application. If you've made changes since the last time you saved the document, you'll be asked whether you want to save your most recent changes.

The Edit Menu



The commands in the Edit menu let you edit the contents of an open MacProject document. You can cut and paste among MacProject documents, between a MacProject document and another application, or between most desk accessories and MacProject.

Undo/Can't Undo
Undoes your last action if it was another command from the Edit menu. Otherwise, this command becomes Can't Undo and is dimmed in MacProject.

Cut
Removes whatever is selected and places it on the Clipboard, where it remains until you next choose Cut or Copy. The selection can be a box or boxes, text, or a combination of any of these. If the selection is a box or group of boxes, their task information and all dependency lines are also cut.

Copy
Copies whatever is selected and places it on the Clipboard, where it remains until you next choose Cut or Copy. The selection can be a box or boxes, text, or a combination of any of these. If the selection is a box or group of boxes, their task information is also copied. To copy objects without their task information, use the Duplicate command.

Paste
Places a copy of whatever is in the Clipboard at the insertion point. You can paste text only into places that allow text, and graphics only into places that allow graphics.

Clear
Removes whatever is selected without placing it on the Clipboard.

Duplicate
Places a copy of a selected object slightly below and to the right of the original.

Duplicate doesn't place the selection on the Clipboard, as Copy does, nor does it copy any task information along with the graphics. To copy task information along with graphic objects, choose Copy.

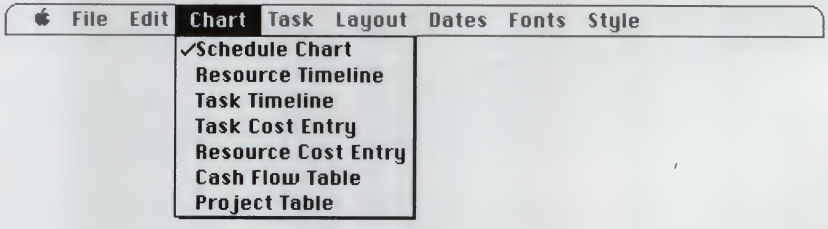
Delete Resource...
Removes the resource whose name you type. Choosing this command removes the resource from the entire project. Of course, you can also remove a resource from a single task by editing the Task Info for that task.

This command is dimmed when no resources have been entered for the project.

Select All
Selects the entire chart in its current chart form. You can then cut or copy it to the Clipboard for pasting into another MacProject document, the Scrapbook, or another application. See "Cutting and Pasting to Other Applications" on page 102.

Show/Hide Clipboard
Shows the current contents of the Clipboard, whatever you last cut or copied. This command changes to Hide Clipboard when the Clipboard window is open.

The Chart Menu



Each MacProject document takes several different chart and table forms. The Chart menu lets you choose the form you want to see. Each chart or table gives you a different perspective and most let you enter or change different information about your project. You can add and edit annotations in all the charts and tables.

Schedule Chart
This chart is where you lay out a project. You draw tasks and milestones here, add Task Info about them, and create and display dependencies between tasks. You can also add descriptive text.

The Schedule Chart is often the best way to understand and communicate the relationships among the tasks in a project.

New documents appear as Schedule Charts.

Resource Timeline
Shows the tasks for each resource in bar chart form with tasks arranged by Earliest Start date. (You can change the timeline by choosing Timeline Scale from the Dates menu.) The Resource Timeline lets you see if you're using resources in the way you want. You can enter or edit Task Info for any task by selecting the task and then choosing Show Task Info or pressing the Tab key.

Task Timeline
Shows all the tasks in bar chart form arranged by Earliest Start date. (You can change the timeline scale by choosing Timeline Scale from the Dates menu.) In the Task Timeline you can enter or edit Task Info for any task by selecting the task and then choosing Show Task Info or pressing the Tab key.

Task Cost Entry
Lets you enter and edit fixed costs and income for any task. Task costs and income are applied only once for the task they are assigned to.

Resource Cost Entry
Lets you enter and edit the unit cost for each resource in whatever unit you set the duration scale to. Unit costs are ongoing—salary or rental costs, for example—and accumulate for the duration of every task that uses this resource.

You can specify that resource costs be shared among tasks that use the resource on any one given day (single accrual method) or assigned separately to each task using the resource on any given day (multiple accrual method). Clicking in the corresponding Accrual Method blank toggles the method used.

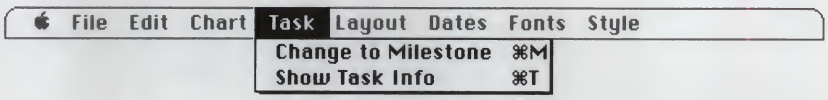
Cash Flow Table

Shows what cash is on hand at any time in the project. Both incremental and cumulative costs and income are shown. You set the increment by choosing Timeline Scale from the Dates menu. You can't enter or edit information other than annotations in the Cash Flow Table.

Project Table

Shows all information about each task in the entire project. You can move your project's information to other applications by selecting the entire table and copying it. You can't enter or edit information other than annotations in the Project Table.

The Task Menu



Change to Milestone/Change to Task

Turns the selected task into a milestone or the selected milestone into a task.

Show/Hide Task Info

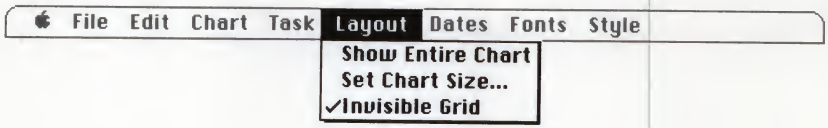
Lets you enter information about the selected task—the amount of time it takes and the resources for the task. You can have up to six resources for each task and fifty for the entire project.

Once opened, the Task Info window remains on the desktop until you click its close box or choose Hide Task Info, or you quit the application. The window always shows the task information for the currently selected task.

Pressing the Tab key is a shortcut for making a Task Info window appear for a selected task. The Tab key also allows you to move to the next blank in the window and return to the first blank if you are in the window's last blank.

Pressing Return while the Task Info window is active makes the next task's information appear. If the rightmost task is selected, pressing Return selects the leftmost task.

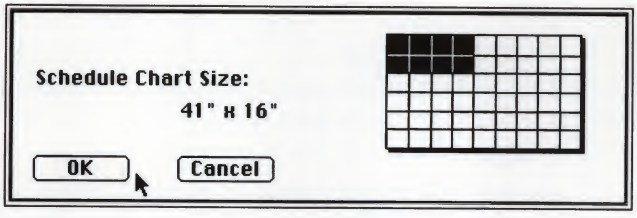
The Layout Menu



Show Entire Chart
Gives you a bird's-eye view of your project. You can move the entire chart on the page by dragging anywhere outside the dotted rectangle, and you can return to a different part of the chart by dragging the dotted rectangle to the part you want to see. Click outside the chart area to return to the close-up view.

This command, together with the Set Chart Size command, lets you manipulate your entire chart's placement on the page or on more than one page. For example, you might set the chart size, and then use the Show Entire Chart command to move the chart around to avoid a bad page break. Page breaks are shown as dotted lines.

Set Chart Size...
Allows you to set the size of your Schedule Chart anywhere from 10 inches wide by 8 inches high (or vice versa if you set up the pages vertically) up to 94 inches wide by 48 inches high. You can't set the size smaller than your Schedule Chart needs.



Click or drag to change the size. You can select any square, and MacProject automatically selects any squares between the top left square and the one you select.

Pages can be oriented vertically (Tall or Tall Adjusted) or horizontally (Wide). MacProject presets the orientation to Wide; you can change it by choosing Page Setup from the File menu.

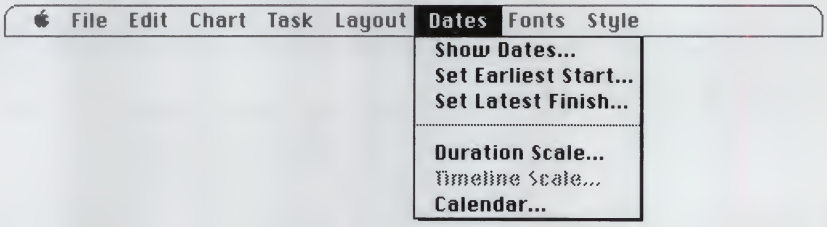
Page breaks appear in your charts as dotted lines. When you print the chart, the pages are printed sequentially.

Invisible Grid

Like working on graph paper, except that the grid lines are invisible. Using the grid constrains your drawing to these grid lines, so it's easy to create task boxes of the same size that line up and dependency lines that are straight.

When the Grid is on, there's a check mark beside the command. Choosing the checked command turns the Grid off.

The Dates Menu



Show Dates...

Lets you display information about the tasks and milestones in your project. The items you choose will be displayed in the Schedule Chart for all tasks. The items you choose to display will appear near the corresponding corner of all task and milestone boxes.

Set Earliest Start...

Lets you set the earliest date or time a task or milestone can get started. MacProject then calculates dates for all tasks and milestones to the right. Any dates you set appear underlined, and they automatically override any dates calculated by MacProject. When you set a date that is impossible to meet (that is, one or more of its predecessors won't be finished by this date), the date appears bold in the chart.

Use this command to set a starting date for the first milestone or task in the project, thereby setting the starting date for the entire project. You can also use the command for milestones that identify requirements within the project.

Use "military" time when you set a time. For example, use 19:00 to set the time at 7:00 pm.

Set Latest Finish...

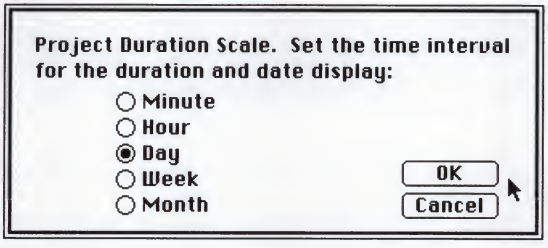
Lets you set the latest date a task or milestone can be finished. MacProject then calculates Latest Finish dates for all tasks and milestones to the left. Any dates you set appear underlined, and they automatically override any dates calculated by MacProject. When you set a date that is infeasible, MacProject will use it anyway. In this case, it will appear bold in the chart.

Use this command to schedule a deadline for the last milestone or task in the project, thereby setting the deadline for the entire project. If you have not set the Latest Finish for the last task, MacProject uses the Earliest Finish date of that task as the Latest Finish.

Use "military" time when you set a time. For example, use 19:00 to set the time at 7:00 pm.

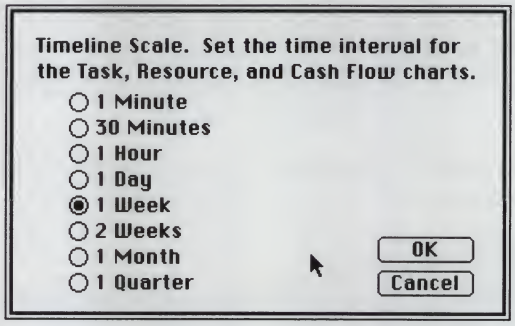
Duration Scale...

Lets you set the unit of time you measure projects in: minutes, hours, days, weeks, or months. When you display task information, the duration will be displayed in the unit you've set. You can change the scale whenever you want. All charts will show your change.



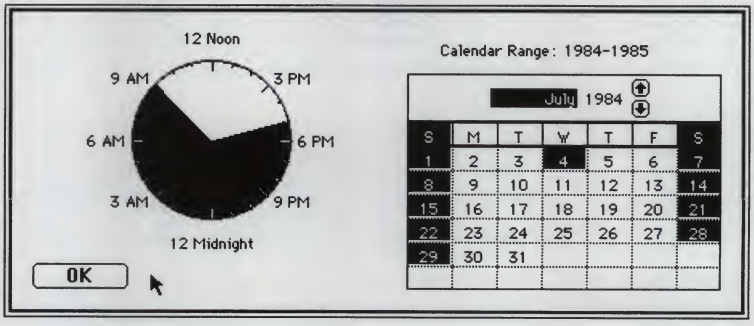
Resource costs use this scale as well. When you enter a resource cost, it's a cost-per-hour, cost-per-day, or cost-per-whatever the current duration scale is. When you change the duration scale, the resource cost is adjusted accordingly.

Timeline Scale...
Changes the scale of the timeline in the charts that show the project over a period of time—the Task Timeline and the Resource Timeline—but doesn't change the duration scale. For example, you can have a duration scale of hours, and view the entire project in days instead of hours.



The timeline scale is also used in the Cash Flow Table. It determines the amount of time for which you want to see incremental costs shown.

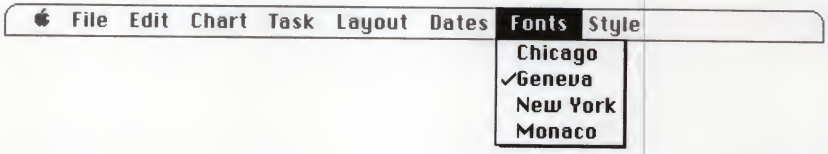
Calendar...
Lets you tell MacProject what the working hours and days are. MacProject figures this information in when it calculates a schedule.



You also use the Calendar to set the year range of the project and any holidays you don't want work to be scheduled on.

Calendar settings affect the entire project—every task and every resource.

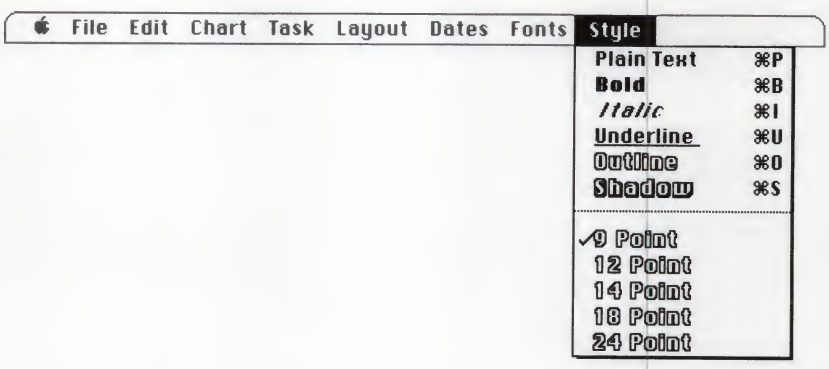
The Fonts Menu



This menu contains a variety of fonts to choose for text in your charts and tables. Font choices affect text you subsequently type or all text related to a selection—either all task text or all text in a single annotation. See "Text in MacProject" on page 100.

Font choices affect only the chart or table you're currently working with.

The Style Menu



This menu gives you choices of text styles (such as bold, underlined, or outlined) and of font sizes.

Like fonts, style and font size choices affect all related text—either all task text or all text in a single annotation. Style choices other than font size don't affect dates because MacProject uses different text styles to give you special information about dates. See "Text in MacProject" on page 100.

Style choices affect only the chart or table you're currently working with.

Shortcuts and Hints

Creating Dependent Boxes

You can create a dependent task box by drawing a dependency line from the center of any existing task or milestone box outward to the right. When you release the mouse button, MacProject draws a new task box the same size as the original box. The new task box is dependent on the task you started the dependency line from.

Tab and Return Keys

Pressing the Tab key after you've drawn a new task box selects that task and presents duration and resources in the Task Info window. The first blank is automatically selected. (It also opens the Task Info window if it's not already open.) When the Task Info window is active, pressing the Tab key moves the insertion point to the next blank or to the first task if you're in the last blank.

Pressing the Return key presents the Task Info for the next task or the first task if you're at the last one.

Command Key

Most commands in the MacProject menu have a Command key equivalent. Hold down the Command key while you type the letter listed to the right of the command in the menu.

Enter Key

Pressing the Enter key when you're editing Task Info enters the new information about a task without your having to click in the document window. This lets you keep your fingers on the keyboard.

Getting Everyone Involved

You can have everyone in the project participate in the project's planning (and save time and inaccuracies) by drawing the project's task boxes and dependencies yourself, and then passing the MacProject disk around to different members of the team and letting them fill in their part of the project's task information.

Troubleshooting a Project Chart

Sometimes your chart doesn't tell you what you want to know. Here are some likely reasons and ways to fix the problem.

MacProject is missing information it needs.
Open the Task Info window. Select each task in turn and make sure you've supplied the Task Info.

There's an "orphan" task.
Every task should be connected, either directly or through other tasks, to the completion of the project. Add dependency lines if necessary.

??
When dates go beyond the range that's set for the project, MacProject puts ?? in place of any date. You can widen the range of your project (up to ten years) by setting the Calendar. See "Setting the Calendar" on page 50.

Running Out of Memory
Remove some annotations. Combine several related tasks into one task. Shorten task names.

Lines Aren't Straight
Choose Invisible Grid from the Layout menu, and move the boxes and lines onto the invisible grid marks.

Dates Don't Seem Right
Check the Calendar settings. Are the working hours right? The working days? Is the year range the right one for your project?

Costs Aren't Coming Out Right
MacProject lets you choose single or multiple accrual of resource costs. If the resource is a single person, you'll usually choose the single accrual method, so costs will be shared among any tasks the resource is assigned to on any one day. When a resource is more than one person or is equipment such as a truck you're renting, you might want the resource costs to be assigned separately for each task that uses the resource. In this case choose the multiple accrual method.

MacProject Is Slowing Down
When projects become large, it takes longer for MacProject to calculate their schedules. Since MacProject calculates only when you display dates around your tasks, you can speed things up by not displaying these dates while you enter information and then displaying them again when you want to see the recalculated schedule.

MacProject Presets

Chart form: Schedule Chart
Invisible Grid: Off
Font: 9 pt. Geneva
Task Info displayed: Earliest Start
Page setup: Paper, US letter; Orientation, Wide
Duration scale: Days
Timeline scale: Weeks
Project start: 1st working day of calendar range
Print quality: Whatever you last set (with any application)
Page range: All
Paper feed: Whatever you last set (with any application)
Accrual method: Multiple
Calendar range: 1984-85
Working days: Monday to Friday
Working hours: 9 to 5

Specifications

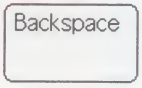
Number of tasks per project: About 200 for a 128K Macintosh; 2000 for a 512K Macintosh
Size in pages: 10 by 8 inches to 94 by 48 (1 to 54 pages)
Number of resources per task: 6
Number of resources per project: 50

Glossary

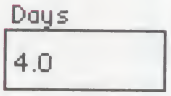
active window
The frontmost window on the desktop; the window where the next action will take place. An active window's title bar is highlighted.



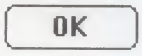
Apple menu
The menu on the far left in the menu bar from which you choose desk accessories. Its title is an apple symbol.



Backspace key
A key that backspaces over and erases the previously typed character or the current selection.



blank
A place to enter information. In MacProject, Task Info windows, dialog boxes, and tables have blanks.



button
The places in dialog boxes where you click to designate, confirm, or cancel an action.

Cancel button
A button that appears in dialog boxes. Clicking this button cancels the command.

choose
To pick a command from a menu by dragging. Usually, you do this after you've selected something for the Macintosh to act on.

click
To position the pointer on something, then press and quickly release the mouse button.

Clipboard
The holding place for what you last cut or copied.



close box
The small white box on the left side in the title bar of an active window. Clicking the close box closes the window.

command
A word or phrase, usually in a menu, describing an action for the Macintosh to perform. Also, a combination of the Command key and a character key that accomplishes the same thing.



Command key
A key that, when held down while another key is pressed, causes a command to take effect.

cost
Money needed for a project to get done. Costs are either one-time, fixed costs for a task or milestone, or they're ongoing unit costs for a resource.



critical path
A sequence of all critical tasks. The critical path is outlined in bold in the Schedule Chart.

critical task
Any task whose slipping would cause the entire project to slip. A critical task's Earliest and Latest dates are the same.



crossbar
A type of pointer used in drawing task boxes.

cut
To remove something by selecting it and choosing Cut from the Edit menu. What you cut is placed on the Clipboard.

date
When a task (or milestone) can begin, must begin, can end, or must end. Dates are calculated by MacProject considering tasks' duration and dependencies, and any dates you set.

dependency
The relationship between a task or milestone and any task that must be completed first.

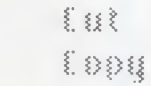
dependency line
A graphic representation of a dependency between tasks.

dependent task
Any task that can't be started until another task is completed. A milestone may also be dependent.

desk accessories
"Mini-applications" that are available from the Apple menu regardless of which application you're using. Examples are the Calculator, Note Pad, Alarm Clock, Scrapbook, and Puzzle.

desktop
Macintosh's working environment—the menu bar and the gray area on the screen.

dialog box
A box containing a message requesting more information from you. Sometimes the message is a warning that you're asking your Macintosh to do something it can't do or that you're about to destroy some of your information. In these cases the message is often accompanied by a "beep."



dimmed command
A command that appears dimmed compared to other commands in the menu. A dimmed command cannot be chosen.

disk
The magnetic medium on which the Macintosh stores information. The Macintosh uses a 3 ½-inch disk.

document
Whatever you create with MacProject or any other application—information you enter, modify, view, or save. A MacProject document can be viewed in several different chart and table forms.

double-click
To position the pointer where you want an action to take place, and then press and release the mouse button twice in quick succession without moving the mouse.

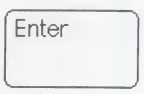
drag
To position the pointer on something, press and hold the mouse button, move the mouse and release the mouse button. When you release the mouse button, you either confirm a selection or move an object to a new location.

duration
The amount of time required to complete a task.

duration scale
The increment in which duration and resource costs are entered. It can be minutes, hours, days, weeks, or months.

Earliest Finish date
The earliest a task or milestone can finish, given the dependencies it has and its duration.

Earliest Start date
The earliest a task or milestone can begin, given the dependencies it has.



Enter key
A key that confirms or terminates an entry or sometimes a command.

Finder
An application that's available on the desktop when you're not using another application. You use it to manage documents and applications.

fixed cost
A one-time cost associated with a task.

fixed income
One-time income associated with a task.

font
A collection of letters, numbers, punctuation marks, and other typographical symbols with a consistent appearance. An example of a Macintosh font is New York.

highlight
To make something visually distinct from its background. An item is usually highlighted to show that it has been selected or chosen.



I-beam
A type of pointer used in entering and editing text.

icon
A graphic representation of an object, a concept, or a message. Icons are often objects associated with the Finder.

initialize
To prepare a disk to receive information.

insertion point
The spot in a document where something will be added. An insertion point is selected by clicking and is represented by a blinking vertical bar.

Latest Finish date
The latest a task or milestone can finish, given the tasks that are dependent on it, in order to meet the project's deadline.

Latest Start date
The latest a task can begin, given its duration and the tasks that are dependent on it, in order to meet the project's deadline.

lock
To prevent documents from being discarded or their names from being changed, or to prevent entire disks from being altered.

memory
The place in the Macintosh main unit that stores information while you're working with it.

menu
A list of commands that appears when you point to and press a menu title in the menu bar. Dragging through the menu and releasing the mouse button while a command is highlighted chooses that command.

menu bar
The horizontal strip at the top of the screen that contains menu titles.

menu title
A word or phrase in the menu bar that designates one menu. Pressing on the menu title causes the title to be highlighted and its menu to appear below it.

milestone
A starting or stopping point for a group of tasks or for the entire project. A significant point in time.

mouse
A small device you roll around on a flat surface next to your Macintosh. When you move the mouse, the pointer on the screen moves correspondingly.

name
In MacProject, the descriptive title given to a task or milestone. Also the title given to a document or disk.

open
To create a window from an icon so you can view a document or directory.

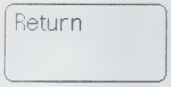
paste
To place the contents of the Clipboard—whatever was last cut or copied—at the insertion point.

pointer
A small shape on the screen that follows the movement of the mouse. In MacProject the pointer can be an arrow, a crossbar, or an I-beam.

press
To position the pointer on something and then hold down the mouse button without moving the mouse.

resource
Anything necessary to complete a task. Usually, a person or group of people, but it can also be materials or equipment.

resource cost
Any ongoing cost associated with a resource. Examples are salary and rental costs.



Return key
A key that causes the insertion point to move to the beginning of the next line. It's also used in some cases to confirm a command. In MacProject, pressing the Return key when the Task Info window is active enters the current task information and causes the task information for the next task to appear.

save
To store information on a disk.

scroll
To move a document in its window so that a different part of it is visible.




scroll arrow
An arrow on either end of a scroll bar. Clicking a scroll arrow moves the document or directory one line. Pressing a scroll arrow scrolls the document continuously.

scroll bar
A rectangular bar that may be along the right or bottom of a window. Clicking or dragging in the scroll bar causes the view of the document to change.

scroll box

The white box in a scroll bar. The position of the scroll box in the scroll bar indicates the position of what's in the window relative to the entire document.

select
To designate where the next action will take place. To select, you click or drag across information.

selection
The information or items affected by the next command. The selection is usually highlighted.

Shift-click
In MacProject, a technique that allows you to select multiple objects by holding down the Shift key and then clicking in succession each object you want to select.

Shift-drag
A technique that allows you to select multiple objects by holding down the Shift key while you drag diagonally to enclose the objects in a rectangle.



Shift key
A key that, when pressed, causes subsequently typed letters to appear in uppercase, and causes the upper symbol to appear when number or symbol keys are typed.



size box
A box on the bottom right corner of some active windows that lets you control the size of the window.

slack time
Time available for a task to slip without affecting the entire project. Slack time is shown as a difference between Earliest and Latest Start or Finish dates.

style
A stylistic variation of a font, such as italic, underline, shadow, or outline.



Tab key
A key that, when pressed, moves the insertion point to the next tab marker or, in a dialog box with more than one place to enter information, to the next blank. In MacProject, pressing the Tab key causes any selected task's Task Info window to appear. Pressing the Tab key while a Task Info window is active moves the insertion point to the next blank.

task
Work that must be done for the project to be completed. A project is made up of a number of tasks.

Task Info window
A window that allows you to view and edit a task's duration, fixed cost, and resources.

timeline scale
The increment by which a project is viewed over time.

title bar
The horizontal bar at the top of a window that shows the name of the window's contents and lets you move the window.

window
Displays information on the desktop. You view documents through windows. You can open or close them, change their size, edit their contents, scroll through them, and move them around on the desktop.

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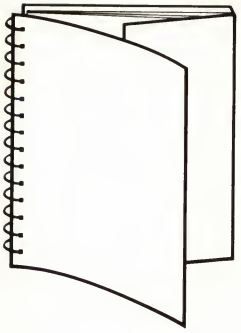
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Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010
TLX 171576



030-1065